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VETERINARY SCIENCE ASSOCIATION
OF AMERICA

NOTES ON

DISEASES OF SWINE, SHEEP, POULTRY AND THE DOG

Cause, Symptoms and Treatments

BY

CHARLES J. KORINEK, V. S.

Graduate of the Ontario Veterinary College, in affiliation with the University of Toronto, Canada. Hon. Member of the Ontario Veterinary Medical Society. Ex. State Veterinarian for Oregon. Ex. President of the Oregon State Veterinary Medical Board of Examiners. Author of "The Veterinarian". Principal of the Veterinary Science Association of America. Sixteen years of Practical Experience as a Veterinary Surgeon.

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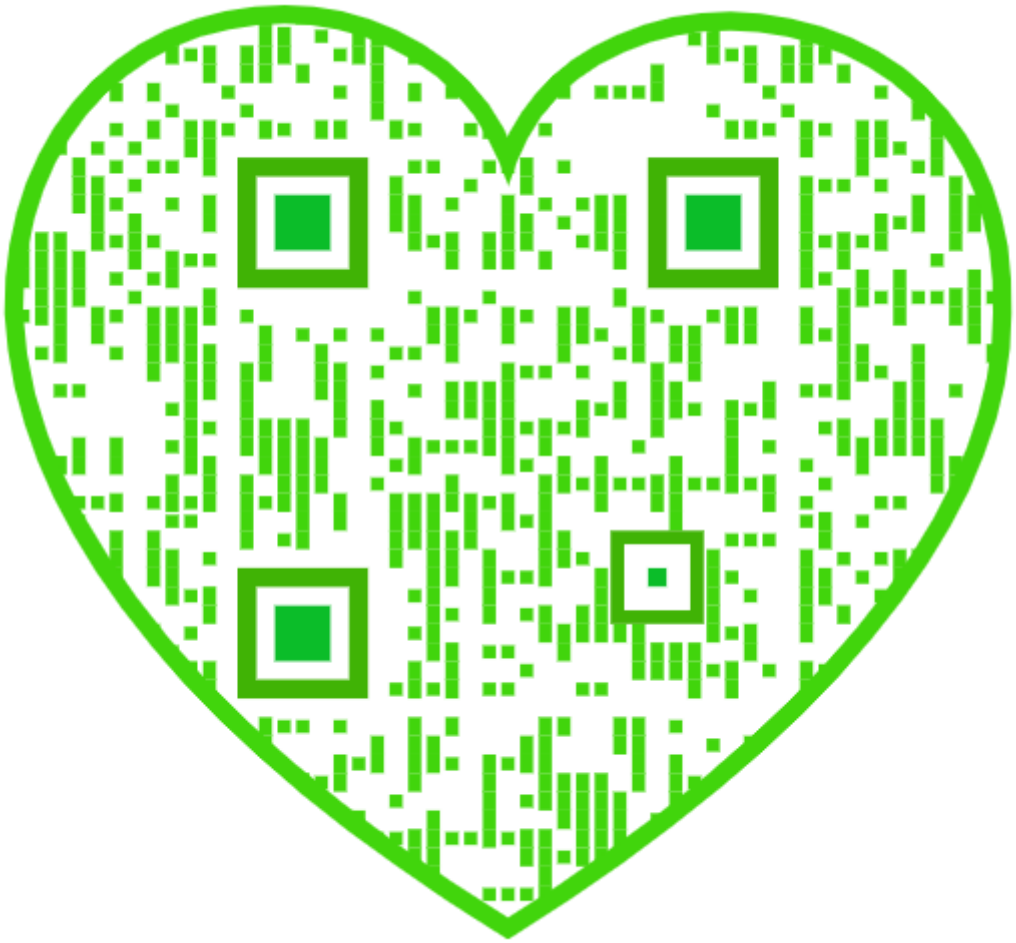

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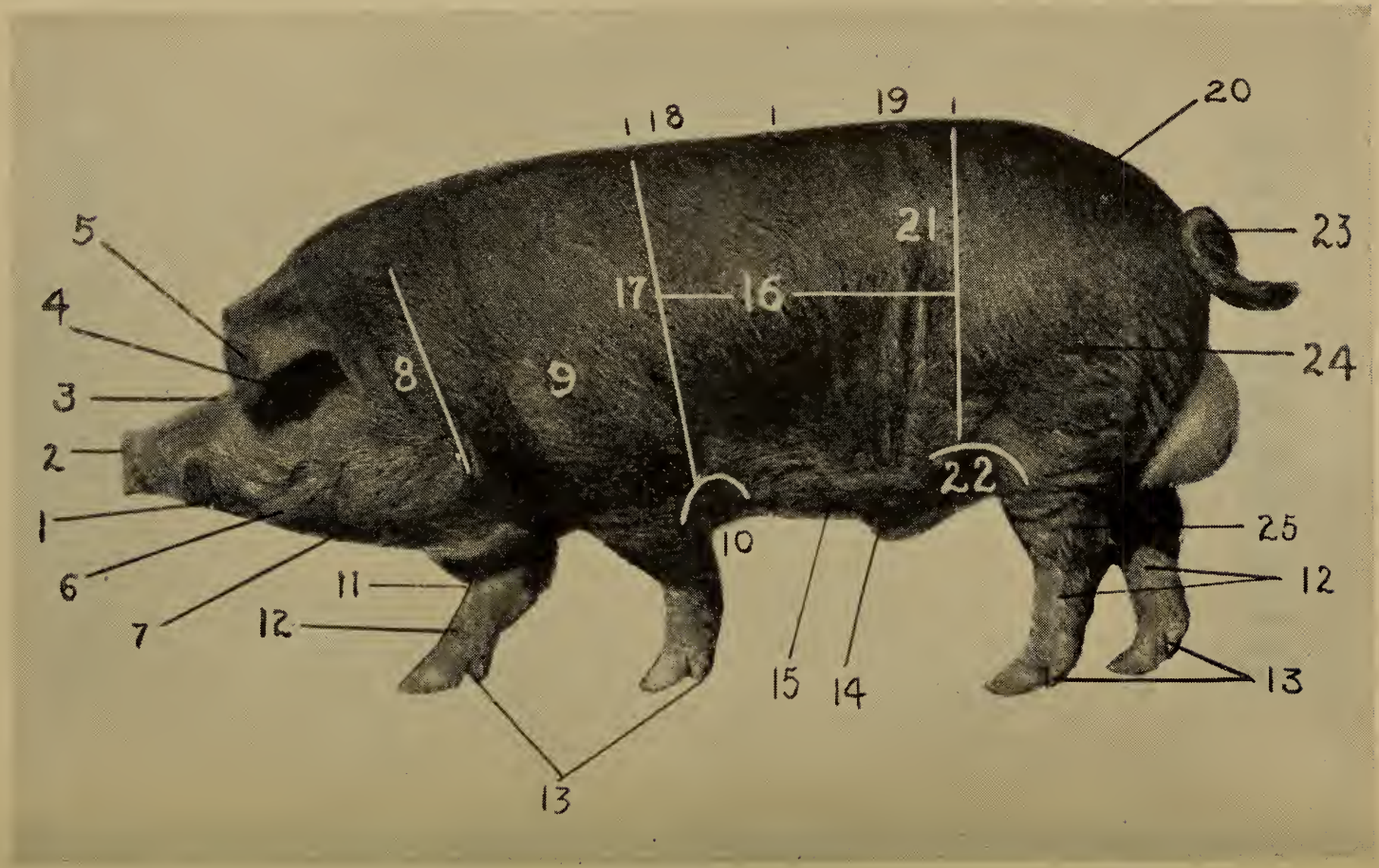
DISEASES OF SWINE

CAUSE, SYMPTOMS AND TREATMENT



LOCATION OF PARTS OF SWINE.

Location of Parts of Swine

1. Mouth.
2. Nostrils.
3. Face.
4. Eyes.
5. Ears.
6. Jaws.
7. Jowl.
8. Neck.
9. Shoulder.
10. Fore flanks.
11. Chest floor.
12. Pasterns.
13. Dew claws.
14. Sheath.
15. Belly.
16. Side or ribs.
17. Heart girth.
18. Back.
19. Loin.
20. Rump.
21. Coupling.
22. Rear flanks.
23. Tail.
24. Thigh.
25. Hocks.

PREFACE

This chapter on diseases of swine has been written with the purpose of placing in the hands of Students and the Veterinary Profession, a book of practical worth; hence, all unnecessary technical language or terms have been eliminated and only such language used as all may read and understand.

The treatment recommended in each disease is one I have used and found efficient in my many years of practice as a Veterinary Surgeon.

If my readers will study the following chapter carefully, they will save much unnecessary loss to the swine industry and be of great value to the community in which they reside.

CHARLES J. KORINEK, V. S.

CHAPTER I.

HOG REGULATOR AND TONIC.

Nux Vomica, one pound; Hardwood Charcoal, two pounds; Sulphur, two pounds; Common Salt, three pounds; Sulphide of Antimony, one and one-half pounds; Glauber Salts, two pounds; Bicarbonate of Soda, four pounds; Hyposulphite of Soda, four pounds; Nitrate of Potash, one pound; Quassia, one-half pound; Gentian Root, one pound; Iron Sulphate, one pound; pulverize and mix well.

To every one hundred pounds of hog weight, give one tablespoonful in feed or swill once or twice daily. For hogs weighing two hundred pounds, the dose would be two tablespoonfuls; for a hog weighing fifty pounds, one-half tablespoonful.

Hogs, like other animals, require tonics, bowel regulators and worm expellers. For these purposes, I have prescribed under a number of the diseases of hogs, which I cover in this chapter, the above general tonic and regulator which I have used in my personal practice with marked success, especially serving the purpose of aiding hogs in the convalescence from debilitating diseases and in their recovery from a general run-down condition.

Aside from its general tonic and regulative effect, this prescription contains nerve tonics, intestinal antiseptics, laxatives, worm expellers, and aids digestion, etc.

If regularly given to hogs, and sanitary conditions are maintained, this tonic and regulator will largely fortify them against contagious diseases.

ABORTION.

Cause.—Sows may abort at any state of pregnancy by slipping, falling, receiving kicks, or by being caught while crawling through or under fences. Sows may also abort when allowed to crawl into quarters where there are other hogs. Contagious diseases, such as Cholera and Pleuropneumonia also produce abortion. There is also a contagious form of abortion in sows, but this is very uncommon, as the disease spreads very slowly.

Symptoms.—There is no warning given, as a rule; the sows expel their pigs before any signs of abortion are noticed.

In other cases the sows refuse to eat, become uneasy, shivering and trembling of the muscles, and straining or labor pains are noticed. As a rule, when a sow aborts, she will not prepare a bed, as she would normally.

Treatment.—Preventive is the only safe and sure treatment, although when the first signs of abortion appear, and there are no signs of the membranes coming away, remove the sow to quiet, warm, clean quarters by herself, and if straining, give one dram of Chloral-Hydrate in her drinking water every two or three hours.

When a sow aborts, burn the pigs and afterbirth, and disinfect the pens with a Coal Tar disinfectant. Keep this up for several days, and do not breed until all discharges from the vagina have ceased flowing.

ADMINISTRATION OF MEDICINE TO HOGS.

To administer medicine to hogs may seem easy, but, nevertheless, it is a difficult task. Never lay a hog on his back to drench him, as in so doing there is great danger of strangling. The proper method is to stand or set him on end, holding him up by the ears, and by the use of a bottle with a piece of hose drawn over its neck, give the medicine very slowly, so as not to allow

a large quantity to accumulate in the mouth or throat at one time. There is always danger of some of the liquid escaping into the lungs and causing the hog to strangle, and thus it may produce pneumonia. However, this is the best method of giving hogs medicine by force.

Hogs will generally take medicine in their feed or drinking water, unless they are very sick, or the medicine is extremely disagreeable to the taste.

BAG INFLAMMATION.

CAUSE.—Injuries, obstructed teats, accumulation of milk in the sow's bag after the loss of part or all of her litter. Difficult birth, slight wounds in the bag permit invasion of germs, which is frequently the common cause of bag inflammation.

SYMPTOMS.—Heat, pain and swelling in one or more teats. The general body temperature is elevated one or two degrees above normal. The sow perhaps refuses her feed, although she will drink water in large quantities.

TREATMENT.—Feed soft, sloppy food and vegetables. Give Epsom Salts, two to four ounces, in milk or feed. It is also well to milk the sow by hand, relieving her of the milk three or four times a day. This is very necessary. Camphorated Oil is very soothing, and I would recommend its use freely over affected teats.

BLACK TOOTH.

CAUSE.—Black Tooth, so called in swine, is principally due to injuries to the teeth received by chewing hard matter, such as bone, etc., which causes them to decay.

SYMPTOMS.—Toothache. Toothache in swine is similar to that exhibited by man, in showing loss of appetite, salivation, or slobbering, hanging the head most-

ly to the side which is affected, loss of fear of man, and offensive breath. If the hogs are fed on strongly acid food for any length of time, their teeth may become dark colored. As the teeth are not materially injured, so long as decayed tooth substance cannot be noticed, and while the appetite and chewing facilities of the hog do not appear to be diminished, no interference will be necessary.

It is customary with some people to examine the teeth of hogs, and if one tooth is found darker colored than the others, it is supposed to be the cause of the hog not doing well, if he is in poor condition, and the tooth is hammered off flush with the jaw, leaving the broken roots, lacerated gums and nerves to increase the hog's suffering. If the hog recovers, it is often concluded that this was a case of Black Tooth.

My advice is, if you are determined to have the tooth out, extract it properly. Do not break it off. When your hogs are not thriving, give them the regulator and tonic prescribed on the first page of this chapter.

BLOOD POISONING.

(*Pyemia Septicemia*)

CAUSE.—Due to the toxic substance produced by germs that invade wounds, bruises, abcesses, or womb following farrowing, if lacerated.

SYMPTOMS.—The seat of injury becomes swollen, pus may adhere to the hair, temperature elevated, appetite poor, hog moves about very slowly, becomes separated from the rest of the drove, lies around in some cool, quiet place, eventually becomes very weak and poor and dies, if good attention is not given.

TREATMENT.—Separate from the other hogs and remove to a clean, comfortable place and wash the seat of injury with some good disinfectant, as a five-per cent

Carbolic Acid solution. In cases of abscess, open it low so as to assure good drainage. Keep clean, cool water before your hogs at all times. Give mashes made from wheat bran and hot water, or any good substantial food that is easily digested containing regulator and tonic prescribed on the first page of this chapter.

BRONCHITIS.

CAUSE.—Lung worms, poorly ventilated sleeping quarters, sleeping in straw stacks, in manure heaps, over-heated, filthy pens, where the animals inhale irritating gases given off the bodies of other hogs, and from filth. Smoke and dust are very common producers of bronchitis.

SYMPTOMS.—Breathing fast, appetite poor, slight rise in temperature and coughing. The hog is dull and stupid, refuses food, but drinks water frequently.

TREATMENT.—Preventive; avoid the above named causes, but when hogs become affected, move them to clean, well ventilated quarters, avoiding dust and gases, disinfect bedding and floors with some good disinfectant, as Crude Carbolic Acid, sprayed. Also give large doses of the hog regulator and tonic as prescribed on the first page of this chapter. Feed vegetables, or any easily digested food, and hot wheat bran mashes.

In case the disease is due to lung worms, confine the animals in a closed shed and permit them to inhale the steam from Turpentine and water for a few minutes, by placing water and Turpentine in a tin receptacle holding about two gallons, and inserting heated bricks or stones into the solution.

CASTRATION.

This is generally understood by every stockraiser, yet there are some points many do not know. For instance, you should use in this operation an antiseptic

solution, as Carbolic Acid or Bichloride of Mercury. Wash thoroughly with antiseptic your hands and knife, also the seat of operation and make your incision as low as possible to permit the pus to drain out nicely. If this is not practiced, the pus will become absorbed into the blood, producing blood poison, which may produce death, or at the best will cause the hog to become stunted, whereas, if the operation is performed properly, the hog will thrive, regardless of the shock from the operation. I may add that it is much better to castrate pigs or hogs when their stomachs or intestines are empty, and it is always good practice to feed laxative and easily digested foods sparingly after this operation.

CHOKING.

CAUSE.—Vegetables such as potatoes, etc., roots, as carrots, turnips and sometimes pieces of bone or glass, lodge in the gullet. Paralysis of the muscular fibres of the gullet is a very common cause of choking in swine.

SYMPTOMS.—The hog is unable to swallow, producing a frothing at the mouth and, if the obstruction cannot be dislodged, death occurs in a very short time. Sometimes the obstruction in the gullet may be felt from the outside with the hand.

TREATMENT.—The administration of small doses of Raw Linseed or Olive Oil, or Lard, will assist in dislodging the obstruction. Also careful manipulation of the gullet from the outside with the hand assists in either forcing it into the stomach or bringing it out through hog's mouth. If vomiting can be produced, it will dislodge the obstruction. If immediate results are not obtained from the above treatments, I would recommend butchering the hog for meat immediately.

COLD IN THE HEAD.

(*Nasal Catarrh*)

CAUSE.—Exposure to cold; a very common condition in cold, wet weather when hogs are allowed to sleep in manure heaps, straw stacks, or pile up together, when they become overheated and later chill. Nasal Catarrh may also be due to inhaling dust or irritating gases.

SYMPTOMS.—The animal is stupid and feverish, coughing and sneezing frequently; appetite is poor, eyes watery and inflamed; a discharge of mucus from the nose will terminate in yellow pus and the nose, if examined, is found to be inflamed and ulcerated.

TREATMENT.—The best and safest treatment is to provide clean sleeping quarters, avoid overcrowding in dusty, dirty sheds, especially during cold weather. Pigs affected with cold in the head should be fed on laxative food, such as boiled carrots, potatoes, apples, hot wheat bran mashes and steamed rolled oats.

MEDICAL TREATMENT.—Confine the affected hogs to a shed, close windows and doors and any large cracks; then compel them to inhale steam from the following mixture: Turpentine, eight ounces; Pine Tar, one pint; Water, two gallons. Place in tin receptacle in center of shed and heat the above solution by adding hot bricks or stones to the mixture occasionally. Compel the hogs to inhale this steam for at least thirty minutes twice a day. Give chlorate of Potash in twenty grain doses three times a day in feed or drinking water. This treatment is very successful if the inflammation has not extended to the lungs.

DIARRHOEA IN YOUNG PIGS.

(*Scours*)

CAUSE.—Decomposed foods, slops, etc., fed to the mothers, causing them to give toxic milk. Poorly ven-

tilated, filthy, cold and damp pens, insufficient exercise, lack of sunlight, raising pigs by hand or with other sow.

SYMPTOMS.—Frequent movement of the bowels, the passage being of a grayish-white color and the odor very disagreeable. At this stage of the disease, reliable remedies must be given or the pig will die very soon.

The discharge from the bowels becomes very thin, the tail and legs become soiled, loss of appetite, the pigs become weak and dull, hair rough and it is difficult for them to move about. In very young pigs, treatment is of little value.

TREATMENT.—As Scours in pigs is a disease frequently caused by faulty food and insanitary surroundings, a preventive treatment is of great importance, and much better results are thus obtained than by the use of medical agents. Medical treatment consists in first cleaning away the irritant present in the bowels. For this purpose give one to two teaspoonfuls of Castor Oil. At the time of farrowing all sows should receive a light diet and be kept in clean, dry quarters. The pigs should be allowed pure air, sunshine and exercise. If the sow appears hot and feverish, give one to three ounces of Castor Oil in milk or swill. Avoid feeding decomposed, moldy food, or sour milk. To check the diarrhoea in pigs, use the following after the irritant is removed or cleaned out as above stated: Zinc Sulphocarbolates, thirty grains; Protan, two ounces; Pulv. Gentian Root, two ounces. Make into sixty capsules or powders and give one, three or four times a day. The sow should receive a dose about eight times the size of that of the pigs.

HOG CHOLERA.

(*Swine Fever*)

CAUSE.—By the Bacillus Sius; contaminated food, stagnant water, filth, etc., all have a tendency to aid its progress. I have seen farms, although located in sections where Cholera was prevalent, not in the least

troubled with the malady, perhaps due to careful feeding of clean foods, care in watering, cleanliness about the pens and sheds and disinfecting occasionally, but no doubt a better explanation is that those hogs received tonics, containing worm expellers, at least four times a year. Many a case of supposed Hog Cholera is due to worms irritating and producing inflammation of the intestines, followed by diarrhoea. A person not familiar with the disease calls this "hog cholera." In other cases, hogs which are fed swills from restaurants, hotels, etc., containing soap, washing powders, small particles of glass, etc., will die with symptoms leading a person to think they had Hog Cholera, but if a thorough investigation is made the true cause of death can easily be discovered.

Symptoms.—In true Hog Cholera, the temperature will be elevated two to four degrees above normal. There will be a loss of appetite, vomiting, diarrhoea, although there may be constipation when the hog is first affected. The hog wanders off by itself to some cool, quiet place and lies down. When it walks it will stagger and show great stiffness in its hind parts, due to soreness of the intestines. The hair will have a roughened appearance, the back arched, the eyes inflamed and discharging pus, red blotches will show themselves back of the ears, inside the legs and on the abdomen. At this stage the diarrhoea is watery, dark and tinged with blood, and very offensive in odor, breathing is very fast and labored. The hog grows very weak and dies.

Treatment.—Prevention must always be borne in mind. Do not feed filthy food. Always feed good, wholesome food, and give clean water to drink. Watch the condition of hog's bowels and regulate them by feeding. Burn manure and bedding and disinfect carefully. Do not permit your hogs to drink out of running streams of water, especially if Hog Cholera is in your neighborhood. When buying hogs, it is well to keep them off by themselves for two or three weeks, as they may be dis-

eased. Do not permit neighbors, their stock or dogs on premises when Hog Cholera is raging, as the infection of Hog Cholera can be spread very rapidly by matter from the affected hogs adhering to the shoes of man, to the feet of stock and hogs, etc.

I am positive that if this method were properly practiced by all hog raisers and feeders, Hog Cholera would be a very rare disease.

SERUM TREATMENT.—This is successful in some cases, and in others unsuccessful. The latter perhaps is due to poor serums, or the disease being so far advanced in its progress that the hogs are beyond recovery. Serum treatment is very expensive and, as it requires a strictly septic operation of injecting the serum, the average hog raiser or grower is not qualified to administer the treatment properly. An additional and necessary expense is the services of a Veterinary Surgeon. Therefore, I strongly urge adoption of preventive measures as stated. Use some good disinfectant, such as Crude Carbolic Acid, which destroys the Bacillus of Hog Cholera. Also administer hog regulator and tonic as prescribed on first page of this chapter. This will expel worms, tone the system, regulate the bowels and fortify your hogs against Hog Cholera.

INDIGESTION.

CAUSE.—Worms are perhaps one of the most common causes. Unwholesome, irritating food or swill containing soap or washing powder have a tendency to derange the process of digestion.

SYMPTOMS. — Abdominal pain, vomiting, back arched, breathing rapid and temperature elevated from two to three degrees. There may be diarrhoea or the animal may be constipated. Vomiting, as a rule, relieves acute attacks by expelling the irritant from the bowels. When it takes a chronic form, the hogs become stunted.

TREATMENT.—Endeavor to find out the cause and re-

move it. If constipated, give Calomel, fifteen to twenty grains, or, if diarrhoea appears, give hog regulator and tonic as prescribed on first page of this chapter. Feed with hot wheat bran mashes. This will expel all worms and aid digestion.

JAUNDICE.

(*Yellows*)

CAUSE.—Liver flukes, intestinal worms, gall stones, lack of exercise, overfeeding, or a stoppage of the bile duct.

SYMPTOMS.—The white portions of the eyes take on a yellow color, as do the membranes of the mouth, back arched, hair looks rough, vomiting, temperature elevated, constipation, although diarrhoea is sometimes noticed. The urine is passed frequently, and is of a dark amber color.

TREATMENT.—This disease requires careful feeding and plenty of exercise. Give Calomel, ten to twenty grains, then follow with large doses of regulator and tonic as prescribed on first page of this chapter. It is important in this disease, especially if due to worms. Feed clean swill and vegetables. Give hogs all the pure water they will drink.

KIDNEY CONGESTION.

CAUSE.—Hogs are subject to various injuries about the kidneys, due to a large number of hogs piling up, exposure to cold, wet rains, etc.

SYMPTOMS.—Small quantities of dark colored urine are passed frequently, appetite poor, no energy to move about. Hogs lie around a great deal; at times they may be paralyzed and drag their hind quarters.

TREATMENT.—Apply cloths or blankets wrung out

of hot water over the loin; also give Potassium Acetate in twenty grain doses four or five times a day in drinking water. Feed soft, sloppy food, containing regulator and tonic as prescribed on the first page of this chapter. It contains nerve stimulants, just what is required in paralysis.

KIDNEY WORM.

CAUSE.—Damp, filthy surroundings seem to favor the growth of embryos of this worm. They are taken into the digestive canal with the food and eventually pass to the region of the kidneys, where they find conditions favorable in which to multiply.

SYMPTOMS.—May produce paralysis of the hind quarters, in which case the animal would not exhibit such marked tenderness on being pressed over the loins with the fingers as it would if the weakness of the hind quarters was due to a sprain or to rheumatism of the loins. Occasionally hogs may suffer from the presence of one or more worms in the kidneys; but the ailment is rarely fatal, becoming so only after a long time of suffering resulting in a degeneration of one or both kidneys. It is almost impossible to diagnose the presence of worms in the kidneys of hogs, except by chance through a microscopic examination of the urine. If worms are found in the kidneys of a hog that has died or has been slaughtered for food it may then be reasonably supposed that other hogs of the same herd not acting normal are infected with worms of the same species.

TREATMENT.—Teaspoonful doses of Turpentine in milk three times a week is the only treatment I could recommend. Preventive measures is the only practical method of treating a disease of this nature. Give your hogs pure water and food. Disinfect pens occasionally and keep them clean.

LICE ON HOGS.

Dip, spray or scrub your hogs with some good Coal Tar disinfectant, but whatever remedy is used it should be applied more than once which, of course, causes considerable work where there is a large number of hogs infested, unless dipped, which is more quickly done. The reason for repeated applications being necessary is that although the lice which hogs pick up from the ground, bedding and rubbing places, may be killed by first application, it often does not affect the nits, which remain intact and hatch within a week or ten days. A new crop of Lice appears on the hog from this source. Remove all manure and bedding from pens and sheds and burn it. Disinfect floors and spray sides of shed, pens and rubbing places with disinfectants, one part to seventy-two parts of water, once a month and you will be handsomely repaid for your labor.

LUNG FEVER.

(*Inflammation of the Lungs*)

Cause.—Sudden changes, exposure to storms, piling up of hogs during cold nights, or sleeping in manure heaps, old straw stacks, etc.

Symptoms.—Pig or hog is taken with shivering spells, is stupid, his back is arched, loss of appetite, temperature elevated two to four degrees above normal, short hurried breathing, generally accompanied with cough, which is deep and hoarse. As a rule the hog is constipated.

Treatment.—Place in good, clean, warm, well ventilated quarters, free from drafts. Keep water before them at all times, adding Saltpeter, one teaspoonful to every gallon of water. If constipated, do not give physics; give injections of soap and warm water; also

administer about one-half teaspoonful of Pine Tar on the tongue with a wooden paddle. This adheres to the tongue and gradually dissolves and gives excellent results, as it is very soothing to the organs of breathing. During the convalescent stage, give hog regulator and tonic as prescribed on first page of this chapter.

LUNG WORMS.

CAUSE.—By threadlike worms varying in length from one-half to one and one-half inches and of brownish-white color. They are found in the windpipe and tubes leading into the lungs. The adult worms in the lungs produce large quantities of eggs, which are coughed up with mucus and become scattered over premises where other hogs are permitted to walk. The hogs inhale the dust containing the eggs into their lungs, where the eggs find moisture sufficient for their development.

SYMPTOMS.—Severe coughing spells. Large quantities of mucus will escape from the nose and mouth. The hog becomes stunted, although he may eat fairly well, but if not relieved, the worms collect in the Bronchi and produce sudden death due to suffocation. The worms may set up an inflammation of the lining membranes of the lungs, which is sometimes taken for Swine Plague, or Cholera. This disease is not uncommon, especially in old, filthy, poorly drained hog houses and pastures.

TREATMENT.—Confine the affected hogs to a shed; close the windows and doors and any large cracks, then compel the hogs to inhale steam from the following mixture: Turpentine, eight ounces; Pine Tar, one pint; Water, two gallons. Place in tin receptacle in center of the shed and heat the above solution by adding hot bricks or stones to the mixture occasionally. Compel them to inhale this steam for at least thirty minutes twice a day. Feed wholesome food to which add hog

tonic as prescribed on first page of this chapter. A strong, vigorous hog may have worms, but it retains its vitality so long as it is well fed.

MANGE.

Cause.—By the Sarcoptes Scabei. This parasite burrows under the outer surface of the skin.

Symptoms.—The parasite usually manifests itself on the skin under the armpits, thighs and inside of the fore legs. At first small red blotches or pimples appear, and these gradually spread as the parasites multiply and burrow under the skin.

Treatment.—There is no other way of curing this disease, or of preventing it, than by killing the parasites and their eggs; not only on the pigs themselves, but also on the sides of the pens, sheds, rubbing-posts, or anything that an affected hog rubs against.

When treating this disease, the real aim must be to kill the parasite by the prompt and continuous use of external remedies, such as washing or dipping, which is better done with some good disinfectant, one part to seventy parts water. Repeat this every ten days until cured. Two dippings are generally sufficient. It is well to feed cooling foods, such as clean slops and vegetables, containing regulator and tonic as prescribed on first page of this chapter.

NAVEL RUPTURE.

(*Navel or Umbilical*)

Cause.—Injuries. Pigs crowding through narrow doorways or openings in fences, small pigs sleeping with large pigs, and allowed to pile up, or being thrown about feed troughs when feeding. Weakness and constipation also predisposes them to Navel or Umbilical Rupture.

SYMPTOMS.—A soft, puffy swelling about the navel or umbilicus, varying in size from a hazelnut to that of an ostrich egg. When a pig is placed on its back the intestines will gravitate into the abdominal cavity, providing the intestines have not adhered to the walls of the rupture.

TREATMENT.—This is more difficult than the Scrotal or Inguinal Rupture operation, as often times the intestines will adhere to the inner surface of the rupture and, unless the operation is carefully performed, there is great danger. Great care must be exercised in preparing the pig by fasting it for twenty-four hours. After this is accomplished, prepare an antiseptic solution, Carbolic Acid, five per cent, or Bichloride of Mercury, one in one-thousandths; also have a needle and absorbent silk or cat-gut ready. Place the pig on its back, with its head downward. Now, wash the seat of operation with either antiseptic solution. Then make an incision through the skin carefully; as stated before, intestines sometimes adhere to the inner surface of the rupture. If such is the case, wash the hands in the antiseptic solution and with the fingers carefully break the adhesions or separate the intestines from their adhesions. After this is accomplished, sew the inner lining of the abdominal cavity with absorbent silk or cat-gut. Then sew the outer skin with cotton or linen cord and your operation is complete. Feed the hog sparingly for a few days following the operation on easily digested, laxative foods.

NETTLE RASH.

(*Urticaira*)

CAUSE.—Irritations of the skin produced by sprinkling hogs with irritating solutions and powders, or from irritating dips when treating for lice, etc. Feeding highly nitrogenous food predisposes hogs to this disease; also filth, poorly drained sheds and pens; is especially

common in young pigs. Nettle Rash is not contagious, but what produces it in one hog may produce it in several at the same time.

Symptoms.—Red, swollen blotches appear on the skin very suddenly, especially about the ears and the inside of the thighs, perhaps due to the skin being thin and deprived of hair. The hog rubs account of the intense itching, and he will not thrive when in this condition. In most cases there is a fluid oozing from the blotches, causing dirt and filth to adhere to the hair. However, if the disease is properly treated, a recovery is sure to follow in about two weeks.

Treatment.—Prevention against this disease is most important, and it consists in keeping shoats and pigs in clean, well ventilated sheds and pens. Do not sprinkle them with irritating solutions or powders, or irritating dips, but when the disease once shows itself give each pig or hog affected a dose of Epsom Salts. one ounce to every twenty-five pounds of hog weight, in feed, swill or drinking water. If the weather is hot, keep them in a clean, cool place, also purify their blood by feeding regulator and tonic as prescribed on first page of this chapter.

Apply some good Coal Tar disinfectant, one part to one hundred parts of water. This is non-irritating, and will destroy hog lice, and will heal the pustules of nettle rash. Apply twice ten days apart. It also must be borne in mind that pens and sleeping quarters must be disinfected; the old bedding and manure burned and replaced with good, clean straw or hay. Feed easily digested food, slops, etc.

PARALYSIS OF THE HIND QUARTERS.

Cause.—There are a great many things that may produce paralysis of the hind quarters. For instance, shipping hogs in crates; fractions of thigh bones; Rickets, due to feeding food that is deficient in mineral mat-

ter; hogs piling up; kicks or injuries to the back; frequently seen in sows nursing a litter of pigs and in a run-down condition. Constipation and indigestion also produce paralysis of the hind quarters. Some think it is caused by worms in the kidneys; this is not always the case. It is true that the presence of a parasite around the kidneys may cause irritation of the nerves of the spinal column and result in paralysis. Yet, it is more often the result of weakness and loss of nervous power of the hind parts.

SYMPTOMS.—Regardless of the cause, the symptoms in either case, for they cannot be distinguished, are weakness of the back, wriggling of the hind parts, and finally the hogs sit down on their haunches. After some effort, they get up and run in a straight line quite fast, but swing to one side for a while and then go over to the other side, and finally get down so that they cannot rise, but drag themselves about. The appetite is good until a day or two before they die.

TREATMENT.—Place the hog in clean, comfortable quarters, with plenty of fresh water to drink. Give sour milk, fruit or vegetables, containing regulator and tonic as prescribed on first page of this chapter. It contains nerve stimulants and blood purifiers. If the hog is constipated, add two to four ounces of Epsom Salts to its feed.

Treatment of all such cases requires perseverance, recovery being slow and not always certain.

PILES.

(*Prolapse of the Anus*)

CAUSE.—Although the pig may look well, he has a weakness of the circular fibres of the intestines, due to irritating foods that either constipate or produce diarrhoea.

SYMPTOMS.—Very plain. A protrusion of the rectum all the way from two to four inches. The pig irritates

the protrusion by rubbing it against the sides of pens, etc.; it cracks, bleeds and in warm weather will become fly-blown and maggots accumulate in large quantities.

Treatment.—In the first stages of this disease, wash the protruded parts with an antiseptic solution of Carbolic Acid, one teaspoonful to a pint of water. Give rectal injections of Soap and Warm Water or Sweet Oil, give about two ounces of Castor Oil internally and feed soft, sloppy food. In chronic cases of long standing, remove the exposed portion of the intestine after washing nicely with the antiseptic solution. Remove the protrusion with a sharp knife and stitch the cut end of intestine edges to the anus. Feed easily digested food, such as wheat bran, mixed with flaxseed meal on which boiling hot water has been poured, cooling before feeding. Also give regulator and tonic as prescribed on first page of this chapter.

PIN WORMS.

Cause.—Hogs consume the eggs that encapsule well matured embryonic worms with their food or drinking water. These worms multiply very rapidly in the small intestines and are from one-half to one inch in length.

Symptoms.—No signs are noticed unless the worms are very abundant, as they are small and difficult to see with the naked eye. The principal point of attack is in the back part of the small intestines, where considerable inflammation is set up, especially when there are other worms, such as the Roundworm, present.

Treatment.—Is of little value, as the worms in the intestines are very difficult to get at, but as their presence causes very little disturbance, it is hardly worth while treating; however, preventive measures should be applied by disinfecting, burning manure and bedding.

The following has proven a very effective treatment for Pinworms: Powdered Quassia, one pound; Sulphur, two pounds; Glauber Salts, one pound; Powdered

Tobacco, one-half pound; Sulphide of Antimony, one pound; Hyposulphite of Soda, two pounds; Beechwood Charcoal, one pound; Common Salt, two pounds.

The above must be well powdered and thoroughly mixed. Give one heaping teaspoonful to every one hundred pounds of hog weight. To small pigs, give doses in proportion to weight. Place it in their feed or slop twice a day. In addition to being a vermifuge, it is an alterative and tonic that should be given pigs and hogs which do not thrive properly. Best results are obtained in treatment of Pinworm when the principal food consists of vegetables, mashes and slops.

PLEURISY.

CAUSE.—Exposure to cold, damp, chilly weather, especially to drafts, or by a large number of hogs being allowed to pile up during cold nights, etc.

SYMPTOMS.—Chilling, temperature elevated two or three degrees above normal; breathing fast. The hog will show great pain when pressed over the lungs by flinching, squealing or grunting; couching suppressed, ribs rigid; breathing mostly with the muscles of the flanks; appetite poor and eventually there will be fluids accumulate in the lung cavities. At this stage, the breathing is labored and difficult. If the ear is pressed over the lungs, the fluids can be heard, and in the first stage the sound will be similar to that of rubbing hair between the finger and thumb.

TREATMENT.—Remove the cause. The treatment is satisfactory if applied in due time. Place in clean, comfortable shed, seeing that it is well ventilated, omit drafts; apply equal parts of Aqua Ammonia Fort., Turpentine and Sweet Oil over the lungs and give two or four ounces of Castor Oil in milk. Feed easily digested food, such as hot wheat bran mashes, containing hog regulator and tonic as prescribed on first page of this chapter. It is also well to feed vegetables.

RHEUMATISM.

CAUSE.—Exposure, as in cold, damp houses. Overfeeding also has a tendency to cause swellings of the joints and muscles.

SYMPTOMS.—Lameness of one or more limbs, swelling of the joints about the legs and feet. The hog does not care to move, refusing its feed in most cases: temperature slightly elevated; breathing quick and short; he will drink water frequently if offered.

TREATMENT.—I am of opinion that Rheumatism in hogs would be a very rare disease if they were properly provided with clean, dry quarters, with a liberal quantity of bedding. Do not allow hogs to pile up, as it is very injurious to them.

MEDICAL TREATMENT.—Consists of feeding sloppy food to which add one-half dram of Sodium Salicylate two or three times a day in their feed. Vegetables and green grass are very beneficial in this disease, as they have a cooling effect on the blood. The hog tonic and regulator recommended on first page of this chapter is very beneficial when given with food of a sloppy nature.

RICKETS.

CAUSE.—Food deficient in mineral matter or lime; filth, lack of exercise, and crowded quarters, all tend to produce a softening of the bones and swelling of the joints.

SYMPTOMS.—The pigs affected generally appear in good condition and seem to be doing well, but suddenly they become paralyzed in the hind quarters, owing to the weakened condition of the bones, which sometimes fracture without receiving injury or any additional weight to that of the pig itself. The bones of the snout, back, limbs and feet bend and become deformed. The pigs

grow weak, poor and stunted and perhaps the best treatment is to destroy them.

PREVENTIVE TREATMENT.—Careful feeding of good, wholesome food. This disease is very seldom seen where hogs are frequently fed corn.

MEDICAL TREATMENT.—When the first signs of Rickets appear, feed regulator and tonic as prescribed on first page of this chapter. It contains the mineral matter needed by the hog.

ROUND WORMS.

CAUSE.—Is undoubtedly due to filth or hogs eating food or drinking water contaminated with well developed eggs or embryos of roundworms, thus taking them into their digestive canal, where they multiply rapidly and set up considerable irritation. This worm varies in length from three to thirteen inches, and is of a reddish-brown color.

SYMPTOMS.—The Roundworm is generally passed with the feces, and can be readily seen with the naked eye. A hog infested with a large number of these worms is generally restless, appetite varied. When these worms dvelop in large numbers, they obstruct the intestines. In other cases they irritate and inflame the intestines, causing inflammation and diarrhoea, and death may be due to either obstruction or inflammation of the bowels.

TREATMENT.—Treatment is very satisfactory. Withhold all food from eighteen to twenty-four hours. Then place in one pint of finely ground feed, Calomel and Santonin, each five grains to every one hundred pounds of hog weight. For instance, if the hog affected with round worms weighs two hundred pounds, double the dose by giving ten grains of each of the above, but if the hog only weighs fifty pounds, give one-half the dose mentioned, or two and one-half grains of each. This treat-

ment should be repeated in a week or ten days to assure the expulsion of worms that might have survived the first dose. Feed sparingly on laxative food, as bran mashes and vegetables, for a few days following each treatment.

RUPTURE.

(*Scrotal or Inguinal*)

Definition.—In the male the intestines pass through the wide Inguinal Canal, through which the cord of the testicle passes. It is not difficult to recognize this form of rupture, as the scrotum that normally retains only the testicles is usually enlarged by the bowels entering it. Sometimes the scrotum almost reaches the ground, and in this case, both sides of the scrotum, or the sack which contains the testicles, also contains intestines. If the pig is held up by the hind parts, the intestines will gravitate back into the abdominal cavity, but as soon as a pig lies down or stands they again return into the scrotum. The testicles can be located at the bottom of the enlargement.

Cause.—Hereditary tendencies predisposes them to rupture; pigs having large Inguinal Canals through which the testicle passes; by pigs being crowded, injured, squeezed at troughs, or passing through narrow doorways. Weakness and severe straining from constipation also produce rupture.

Symptoms.—An enlargement of the sack containing the testicles. Sometimes there may be a strangulation of the intestines where they fold or twist. They become inflamed and produce death. The pig dies in great pain, but fortunately, strangulated ruptures in pigs are very rare, as the scrotum and canal which the intestines occupy relax and become very roomy.

Treatment.—Operation is the only method of relieving or curing Inguinal or Scrotal Rupture. My advice

is to operate as soon as possible. When the pigs are small, there is less danger. The pig to be operated on should be fasted for at least twenty-four hours, as it is easier on both the operator and the pig when the intestines are empty, or nearly so.

The operation which I have found to be very successful is as follows: Have an assistant hold the pig up by its hind legs. Prepare an antiseptic solution of Carbolic Acid five per cent, or Bichloride of Mercury, one in one-thousandths, in a pan. Have a needle threaded with a medium sized absorbent silk or cat-gut suture. Prepare a clean, sharp knife; wash the seat of operation with either antiseptic solution. Now, proceed to locate the testicle by having the hind parts elevated. The intestines must be pressed back into the abdominal cavity. The testicle will remain in the sack or scrotum; now grasp the testicle between the fingers and make the incision through the scrotum and to the lower portion. It may be necessary to insert two fingers to withdraw the testicle. When the testicle is located, withdraw it. Before cutting it off it is well to run a needle containing a thread through the last covering of the testicle so as to prevent the membrane from returning. After this is securely done, remove the testicle and sew the inner membranes that envelop the rupture and testicle with what is called a "tobacco pouch suture." Draw it together firmly and tie and cut off suture about one-half inch from the knot. Your operation is now complete. Do not sew the outer incision in the scrotum, as it would have a tendency to accumulate dirt and hold pus. It should have a free drainage. Wash with one of the above mentioned antiseptics twice daily until thoroughly healed. Also feed laxative foods that are easily digested.

SORE FEET.

Cause.—Filth, especially common in large hogs when confined to hard floors or driven over rough, hard roads, or continually kept in filthy pens. The tissues of

the feet become softened, especially those between the claws. Irritation is set up by germs entering the abrasions.

Symptoms.—The hogs will be noticed going very lame and if closely examined the above named conditions will be found.

Treatment.—Remove the hogs to clean, dry pens containing plenty of clean bedding, and wash the affected parts with some good disinfectant, as five per cent solution of Carbolic Acid. Repeat this treatment at least once a day. In case the feet are badly inflamed, I would advise the application of hot Flaxseed Meal poultices to the feet. Feed easily digested food, as it aids materially in the treatment of infectious wounds.

SORE MOUTH.

Cause.—Decomposed foods. Also slops or stagnant water, washing powders, broken glassware, etc., from the tables, fed in slops, barley or wheat beards, etc.

Symptoms.—Difficulty in eating, or refusal to eat at all. Stringy secretions of saliva continually oozing from the mouth. The mouth gives off a very offensive odor.

Treatment.—In this form of sore mouth, remove the cause. Feed soft, wholesome food, such as wheat bran mashes and vegetables. In cases where it is due to the lodging of beards of wheat or barley, gag the hog's mouth with a piece of wood and remove the beards with forceps. Keep clean, cool water before them at all times and avoid feeding dry, hard food.

SOWS EATING THEIR YOUNG.

Cause.—Insufficient lime or mineral matter fed prior to farrowing; constipation is also a fruitful cause.

PREVENTION.—Careful feeding for a few days prior to farrowing of slops, free from soap or washing powders; cool food, such as wheat bran mashes, with hog tonic and regulator as prescribed on the first page of this chapter. This is loosening to the bowels and also contains mineral matter and blood purifiers which are very valuable in the above mentioned condition.

SUN OR HEAT STROKE.

CAUSE.—Hogs that are very fat, and driven, hauled or shipped to market when the weather is warm, are frequently stricken with heat or sun-stroke. Sometimes when hogs are overcrowded and not protected from the rays of the sun, or from heat, they may become victims of heat or sunstroke.

SYMPTOMS.—First they stagger when walking, then they become very weak and temperature elevates three or four degrees higher than normal. Prostration or extreme depression, or sometimes involuntary spasms or contractions of muscles occur.

TREATMENT.—Prevention. Do not drive, haul or ship during the hottest part of the day, hogs that are not accustomed to exercise or extreme heat. Do not crowd hogs in small pens or sheds during the hot months, as their bodies give off considerable heat in addition to that of the sun. See that they are protected from the sun. When hauling or shipping hogs, wet them occasionally with water. It prevents heat stroke. In case a hog is suffering from heat or sun-stroke, place it in a cool, shady place and apply ice or cold water to the head only. Also give Saltpeter in teaspoonful doses every six hours diluted in one ounce of water. Also give Alcohol, one teaspoonful, every three hours in one ounce of water. Good recovery is often obtained from the above treatment.

THORN-HEADED WORMS.

Cause.—A white grub that is found in old manure heaps, straw stacks and hog lots carries eggs containing embryos of the Thorn-headed Worm. The white grub is eaten by the hog. The larvae of the Thorn-headed Worm is liberated by the process of digestion and becomes a parasite in the intestines of the hogs, where it develops into a fully matured worm. Large numbers of hogs quickly become infested with this parasite, as they multiply very rapidly. These worms vary from two to twelve inches in length, and have a whitish color.

Symptoms.—As a general rule, a worm can be seen in the feces. Other signs are that the hog loses flesh, appetite irregular, constipation, and then again there may be diarrhoea, especially where there are large numbers of worms present.

Treatment.—First of all, burn all manure or decomposed vegetation that the hogs are liable to come in contact with. Withhold all food from eighteen to twenty-four hours and give one teaspoonful of Oil of Turpentine to every one hundred pounds of hog weight, or if the hog weighs less than one hundred pounds, doses should be given in proportion. Follow this treatment for three or four consecutive days. Turpentine is easily given to hogs, as they will drink it in milk when well mixed. Perhaps it is advisable, where a large number of hogs are affected, to divide them into pens of five or ten hogs, as they are thus less likely to get an overdose. Feed laxative food. Clean and disinfect troughs and feeding floors. Also give prescription on first page of this chapter.

THUMPS.

Cause.—Disorders of the digestive system from overloading the stomach and causing irritation of the

nerves leading to the diaphragm, which is the membrane that separates the lungs and heart from the intestines, stomach, liver and spleen. It is a spasm of this membrane that causes a hog or pig to have "Thumps." Insufficient exercise; a large number of pigs may become affected at the same time when closely confined.

SYMPTOMS.—Jerking of the flanks; the pig or hog becomes very weak and stunted in a very short time.

TREATMENT.—Remove the cause. In pigs, when first affected, careful feeding and exercise will generally effect a cure. In some cases, where the pigs are very small, it is well to take them away from the mother, permitting them to nurse very little. Giv them Castor Oil in teaspoonful doses, and compel them to exercise. It may be necesasry to give them Chloral Hydrate ten to fifteen grains two or three times a day diluted in a teaspoonful of water. Where the pigs will not eat mashes or drink milk, give them medicine by force with a teaspoon.

AFTER TREATMENT.—Give hog regulator and tonic as prescribed on first page of this chapter.

WHIP WORM.

This worm is very uncommon, but occasionally is found in the large intestines.

CAUSE.—The eggs become imbedded in the manure, bedding, etc., and then mix with the food and drinking water and are taken into the digestive canal where they develop into matured worms. This worm is from one to three inches in length, the hind extremity of which is very thin, hence the name, "Whipworm."

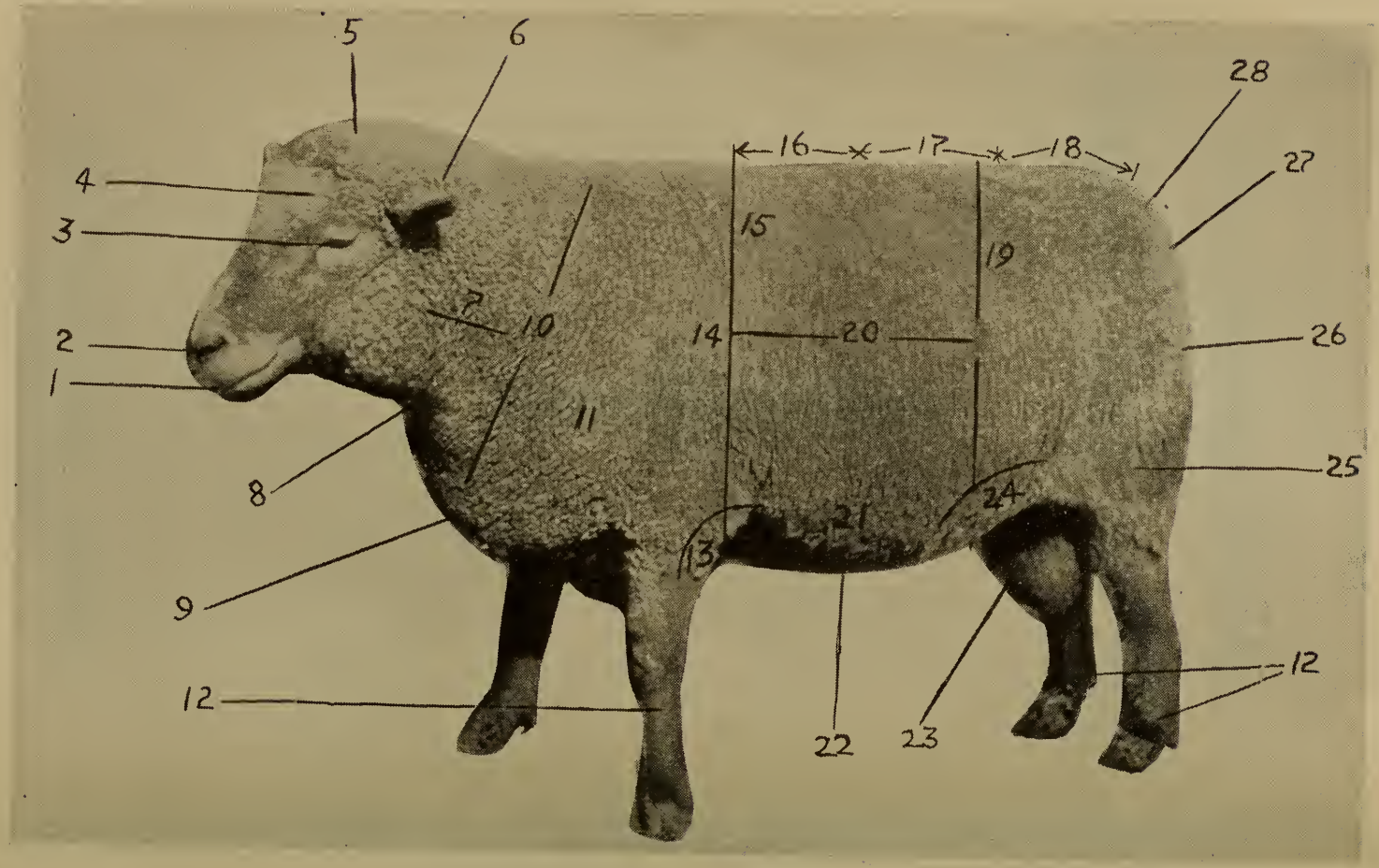
SYMPTOMS.—They produce very little disturbance, even though present in large quantities, except when

other worms assist in their irritating the lining membranes of the large intestines.

Medical Treatment.—Withhold all food from eighteen to twenty-four hours, then give one teaspoonful of Gasoline thoroughly mixed with milk, to every one hundred pounds of hog weight. Small hogs, reduce the dose in proportion to their weight. It is advisable to follow this dose for two or three consecutive days. Feed food that is easily digested, and see that they have fresh water to drink.

DISEASES OF
Sheep and Goats

CAUSE, SYMPTOMS AND
TREATMENT



LOCATION OF PARTS OF SHEEP.

Location of Parts of Sheep

1. Mouth.
2. Nostrils.
3. Eyes.
4. Forehead.
5. Poll.
6. Ears.
7. Neck or scrag.
8. Throat or throttle.
9. Brisket or breast.
10. Shoulder vein.
11. Shoulder.
12. Legs.
13. Fore flank.
14. Heart girth.
15. Crops.
16. Back.
17. Loin.
18. Rump.
19. Coupling.
20. Ribs.
21. Belly.
22. Sheath.
23. Scrotum.
24. Rear flanks.
25. Leg of mutton.
26. Twist.
27. Tail or dock.
28. Rump.

PREFACE

This chapter on the diseases of sheep and goats has been written for the benefit of the Student of Veterinary Science as well as for the Veterinary Profession.

I feel it will suffice to say that I have endeavored to the best of my ability to render the matter contained in the following chapter of as great *practical* value as possible, to present in the most plain and concise manner each disease in the form in which it most frequently occurs.

I wish to express a hope that this chapter will be appreciated by all into whose hands it may find its way, more particularly by Veterinary Students and Practitioners.

CHARLES J. KORINEK, V. S.

CHAPTER II.

ABORTION.

Cause.—Is usually produced by injuries, or by the ewes being poisoned from eating poisonous foods, plants, etc. It has never occurred in infectious form in this country, although sometimes an outbreak is thought infectious on account of several ewes aborting about the same time, but all such outbreaks have been traced to some irritating poison which they had taken with their food or drinking water.

Preventive Treatment. — Remove the aborted lambs or kids and afterbirth from the yards, and also withdraw the ewe or nanny and place her in comfortable quarters. She requires care and extra nursing, or she will become very poor and lose a large portion of her fleece.

Medical Treatment.—If due to poisonous plants, etc., when the first symptoms of Abortion or poisoning are noticed, give six to ten ounces of Castor Oil. Warm the oil so it will run freely. Set the sheep or goat upon its haunches and pour very slowly. Great care must be exercised so as not to let any of the oil enter the lungs, as it may produce fatal pneumonia. Feed food that is easily digested and supply them with pure water to drink. When the general condition is weak or run down, so to speak, the following tonic is recommended: Pulv. Gentian Root, one ounce; Pulv. Nux Vomica, one ounce; Pulv. Potassium Nitrate, one ounce; Hyposulphite of Soda, three ounces; Protan, three ounces. Mix and make into twenty-four powders. Give one powder two or three times daily well back on the tongue.

Remember all tonics are bitter, therefore beware of

any so-called tonics that the animals eat readily, as these possess no real tonic values.

BLACK SCOURS.

(*Verminous Gastritis—Strongylosis*)

Cause.—Due to a worm (Strongylus Contortus) measuring one-fourth to one inch in length, inhabiting the intestines and the fourth stomach of sheep and goats. This disease is frequently seen in low, marshy pastures, where animals infested with the worm pass the ova or egg with the feces, the eggs developing into an embryotic worm which is again taken with the food or water by non-infected animals, whereby this disease again attacks the intestines and fully matured worms develop.

Symptoms.—Naturally, the symptoms vary according to the violence of the attack. In well developed cases, the animal strains to defecate, and passes shreds of intestinal mucous along with blood-stained feces. Finally a severe dysentery takes place, the animal becomes correspondingly weak, and death takes place in two or three days. Some cases become chronic, in which death does not take place for a month or more. However, the latter is uncommon. Other signs are staggering gait, trembling, eyes fixed, showing wild expression, neck turned to one side. Then the animal appears as if in pain, and looks around at the flank frequently. There is a chopping of the jaws, and a very free flow of stringy saliva from the mouth. When an animal dies from the symptoms just described, it should be cut open and carefully examined for this particular parasite, which can be easily seen with the naked eye.

Treatment.—Very successfully treated when the first symptoms appear by administering one ounce of Gasolene with a pint of Milk. To lambs or kids give half the dose. Every precaution should be taken so as to prevent the drench from entering the lungs. Perhaps

the best method is to set the animals on its haunches and pour the liquid slowly and carefully; if they cough, let them down. Any drench entering the lungs produces fatal pneumonia. Feed good nourishing food, and supply them with fresh water to drink.

CATARRH.

(*Cold in the Head*)

CAUSE.—Atmospheric changes, sudden exposure to cold, wet weather after being accustomed to warm, comfortable surroundings, inhaling dust, smoke and gases or, in fact, anything that will produce an irritation to the membranes lining the nose; commonly seen in the spring and fall.

SYMPTOMS.—Chilling, elevation of temperature, nose dry, breathing hurried, sneezing, coughing, dullness, appetite varied. In the first stages of the malady, the nostrils are considerably inflamed, but in the course of a few days the temperature subsides and a yellowish-white discharge flows from the nose continuously.

TREATMENT.—Keep the affected animals dry, omit drafts, feed good, wholesome food, and provide bedding for them to lie upon. In the first stages of this malady, it is advisable to confine the animals in a barn, closing the windows and doors and compelling them to inhale steam from boiling hot water and Pine Tar. The best method to accomplish this is by placing a tub about half full of water in the center of the barn and add about one gallon of Pine Tar. Then heat bricks or stones and place them into the tub. In this way a large number can be treated at one time. The sheep should be compelled to inhale this steam for thirty to forty minutes twice a day. In addition to the above, the following is very beneficial: Chlorate of Potash, one ounce; Nitrate of Potassi, two ounces. Make into sixteen powders and give one powder to each sheep in its drinking water two

or three times daily. Feed hot bran mashes and vegetables if possible.

DIARRHOEA.

(*Dysentery*)

Cause.—Diarrhoea, or Dysentery, is a sign of some irritation of the intestines resulting in increased secretions, or increased muscular contraction, or both. The irritation is sometimes the result of chilling from exposure, improper feeding, as contaminated or frozen foods, irritating foods, drinking cold or stagnant water, indigestion, organic diseases of the intestines, or parasitic diseases. (See Strongylosis.)

Symptoms.—Movements from the bowels are frequent, as first consisting of thin fecal matter, but as this malady progresses it becomes watery and offensive in smell, and streaked with blood. At first the animal shows no constitutional disturbances, but eventually it becomes weak and shows signs of abdominal pain by looking around to the flank, throwing the feet together, lying down, or moving restlessly. Sometimes this disease is accompanied by fever, great depression, loss of strength, rapid loss of flesh; terminating in death.

Treatment.—Determine the cause and remove it if possible. When the disease is due to irritating properties of food which have been fed the animal, it is well to give a physic of Castor Oil in two to six ounce doses, according to the size of the animal. When there is debility, want of appetite, and temperature normal, but continuous water discharge from the bowels, give Protan, two ounces; Gum Cathechu, one ounce; Pulv. Ginger, one ounce; Zinc Sulphocarbolates, eight grains. Make into sixteen powders and give one powder on the tongue every three or four hours, according to the severity of the attack. Feed food that is easily digested, as wheat bran mashes, steamed rolled oats, etc. See that the drinking water is fresh and clean.

FOOT ROT.

(Foul in the Foot)

Cause.—Foot Rot is produced by inflammation of the soft structures of the foot between the claws or toes. It may be due to an overgrowth and inward pressure, etc., or from filth accumulating and hardening between the claws, producing inflammation and softening or ulceration of the skin in the interdigital space (between the claws). Under some conditions several sheep or goats in the same drove become affected at the same time, leading many to think that the disease is contagious. When Foot Rot appears in a very short time, among sheep or goats, this condition can almost always be traced to filth, irritation, etc.

Symptoms.—The animal is observed to limp when walking. On careful examination of the foot we find it hot, swollen above the claws and in the soft parts between them, frequently spreading the claws apart to a considerable extent, or the inflammation may have advanced to softening and sloughing of the soft structure between the claws. If this condition is neglected at this stage, deep abscesses form and the pus burrows under the horny wall, and the joints within the hoof become inflamed and destroyed, in which case the treatment is difficult and recovery will be very arduous.

Treatment.—In the early stages of the disease, before the pus burrows beneath the horny structures of the foot, any foreign substances impacted between the claws should be removed. Then place a trough about one foot wide, six to eight inches high, and twelve to sixteen feet long, and fill with water and Coal Tar Dip, diluted in proportions of one part dip to fifty parts of water. Build a fence on each side of the trough, just wide enough for one sheep to pass through, and compel every sheep to walk in the solution slowly.

This treatment should be repeated once or twice a week until the lameness has disappeared. In cases where deep sloughing has taken place under the horny structures, saturate a piece of oakum or cotton in the following liniment: Oil of Origanum, Oil of Pisis, Oil of Turpentine, each four ounces. Place it between the claws and hold it there by means of a bandage. Repeat this application every other day. The animals that do not show signs of improvement under this treatment in a few days invariably have the joints of the foot affected and should not be driven.

FORAGE POISONING.

Cause.—This condition is produced by animals eating various foliage (Grass or Shrubbery) at a time when the peculiar poisonous principles are developed in it, as appears to happen in certain seasons. The disease is liable to affect a large proportion of animals which are under the same grazing conditions.

Symptoms.—Generally takes two or three days to develop. The animal gradually becomes more or less unconscious and paralyzed, staggers when forced to walk, and it may have great difficulty in keeping on its feet, it is extremely averse to going down, and leans for support against any convenient object. It breathes in a snorting manner. The mucous membranes are tinged with yellow, and the bowels constipated. In other cases severe diarrhoea follows, and the animal becomes very weak and dies in convulsions or spasms. Recovery may be expected in cases that are not marked by severe symptoms.

Treatment.—Endeavor to find out the true cause and remove it if possible. Change range or pasture for a short time; this has successfully eradicated this malady. The animal showing the above symptoms should receive four to eight ounces of Castor Oil regardless of whether there is diarrhoea or constipation. In either case

the irritation will be relieved by its laxative effect. In cases where diarrhoea becomes chronic, after administering the Castor Oil, the following will be found very efficient in its control: Protan, three ounces; Ginger, one ounce; Gum Catechu, two ounces. Make into sixteen powders and place one powder well back on the tongue every four or six hours. Feed clean, wholesome food and supply clean, fresh water to drink. Provide shelter for the animal if the weather is hot.

GARGET.

(*Congestion and Inflammation of the Udder*)

Cause.—As a rule, in Garget or Congestion of the Udder in heavy milking ewes, just before and after lambing, the glands of the udder enlarge, become hot, tense and tender and a slight pasty swelling extends forward from the glands on the lower surface of the abdomen. This physiological condition is looked upon as a matter of course and disposed of in two or three days when the secretions of milk have been fully established. General breaking up of the udder may be greatly hastened by the sucking of a hungry lamb and the kneading it gives the udder with its nose is beneficial. The above mentioned congestion or Garget may emerge into active inflammation resulting from continued exposure to cold weather, standing in cold drafts or injury to the udder from stone, clubs, feet of other animals, overfeeding or rich food, like cotton seed or soy bean, sore teats or a ewe losing her lamb in the period of full milking; serious disturbances of the animal's health is liable to fall upon the udder.

Symptoms.—The symptoms and mode of attack vary in different cases. Following exposure to cold drafts or cold, wet weather, there is usually severe chilling with cold ears and limbs and general dryness and brittleness of the wool. This is followed by a flush of heat, the ears and limbs become unnaturally warm and

the glands swell up and become firm and solid in one or both sides of the udder. The muzzle is hot and dry, temperature elevated two or three degrees above normal, pulse firm and quick, excited breathing, appetite and rumination suspended, bowels constipated, urine scanty and the yield of milk may be entirely suppressed in the affected side.

Treatment.—Determine the cause and remove it if possible. Move the affected animals to comfortable quarters, supply liberal quantities of bedding for the animal to lie upon. Give two to six ounces of Glauber Salts dissolved in a pint of hot water. Permit it to cool. Place the ewe on her haunches and drench carefully. Feed laxative foods as hot bran mashes, steamed rolled oats and vegetables, supplying the animal with pure water to drink, to which add two drams of Hyposulphite of Soda, two or three times a day. In some cases it is advisable to apply Camphorated Ointment to the udder once or twice a day.

GID.

(*Sturdy*)

Cause.—Gid is produced by a bladder worm, a larva or an egg of the tapeworm infesting the intestines of dogs, wolves and coyotes. The eggs of these tapeworms are scattered over the range or pastures in the droppings of infested dogs, wolves or coyotes, and these when swallowed in the food or water by the sheep, hatch out and the embryos migrate to the brain, spinal cord, etc., where they develop into cysts, bladder worms or water bags, etc. When the organs of sheep, thus infested, are eaten by dogs, wolves or coyotes, the cyst worms are also likely to be swallowed and then develop into mature tapeworms.

Symptoms.—In case a large number of embryos become lodged in the brain of sheep, the first signs will be shown in about eight to twelve days. Bladder worms

produce a congestion of the brain which causes dullness, dizziness, indicating an affection of the brain, walking or turning in circles. If the left side of the brain is affected, they will turn to the left; if the right side is affected, they will turn to the right. The head eventually droops, the eyes become red and the vision is impaired, the head very hot over the affected region, the affected sheep become separated from the flock. Sometimes the sheep are partially or completely paralyzed.

PREVENTION.—Prevention is the only method by which this disease can be eradicated. Prevent the sheep from becoming infected with these parasites. Stray dogs, wolves or coyotes should be killed whenever found, and dogs too valuable to kill should be kept free from tapeworm. Meat should not be fed to dogs unless cooked or known to be free from tapeworm cysts.

GRUBS IN THE HEAD.

(*Head Maggot*)

CAUSE.—Grubs in the head of sheep are produced by the Sheep Gadfly which is yellowish-gray in color with five well divided rings around its body, covered over with fine hair and the lower portion of the head white. This fly is somewhat larger than the ordinary house fly. It attacks sheep and goats during the Summer and Fall and deposits its larva about the sheep's and goat's nostrils. This larva attaches itself to the mucous membrane of the nostrils with two hooklets by which it gradually works into the air cavities of the head, remaining there for about ten months. Then it again passes from the nostrils, burrows into the ground and becomes a fully matured Gadfly in six or eight weeks, which completes its life cycle, the head of the sheep or goat being its intermediate host where the newly born Gadfly again attaches its larva.

SYMPTOMS.—When sheep or goats are attacked by this Gadfly, they run, strike at the nose with their front

feet, rub the nose on the ground or against other sheep. In case only three or four larvae gain entrance to the sinuses of the head, they produce very little, if any, ill effects, but where they become numerous, they cause the animal to cough and sneeze continually, discharge from the nose, which is occasionally tinged with blood. The appetite becomes impaired, the animal shows signs of emaciation, becomes very weak, raises the nose in the air, but eventually becomes so weak it reels when walking and finally lies down. It becomes so weak it cannot toss the head or rise, and dies.

Prevention Treatment.—Very successful. Paint the sheep's or goat's nose with Pine Tar, or better still, place salt in a trough, covering it with boards, with holes bored in them just large enough for the animal to insert its nose. Smear Pine Tar about the holes once or twice a week. This treatment has proven very efficient in localities where sheep Gadflies are numerous.

Medical Treatment.—After the animal once becomes infected with these grubs, bore holes (trephine) through the skull with a sharp instrument made for this purpose and remove the grubs.

HOVEN.

(*Bloating—Acute Tympanites—Acute Indigestion*)

Cause.—Hoven is caused by various kinds of food which produce indigestion or fermentation and resultant gases in the rumen or paunch. When sheep are first turned into young clover, they eat so greedily of it that bloating frequently results. Turnips, potatoes and cabbage may also produce it. Middlings and corn meal also frequently give rise to it. In this connection it may be stated that an excessive quantity of any food, before mentioned, may bring on this disorder, or it may not be due to excessive eating but to eating too fast. Sometimes the quality of food is at fault. Grass, clover or alfalfa, when wet with dew or rain soaked, frequently

produce digestive disorders and bloating follows. Frozen roots or potatoes covered with white frost should be regarded as dangerous. When food has been eaten too hastily or when it is cold and wet, the digestive process is imperfectly performed and the food contained in the paunch ferments, during which process large quantities of gas are formed. This same result may follow when a sheep is choking, as the obstruction in the gullet prevents the eructation or passing of gas from the stomach so that the gas continues to accumulate until severe bloating results.

Symptoms.—The swelling of the left flank is very characteristic, as in well marked cases the flank at its upper part rises above the level of the backbone and when struck with the tips of the fingers emits a drum-like sound. The animal has an anxious expression, moves uneasily and is evidently distressed. If relief is not obtained in time the sheep breathes with difficulty, reels in walking or standing and in a short time falls down and dies from suffocation. The distention of the stomach or rumen may become so great that it pushes the diaphragh (the membrane separating the lung and intestinal cavity) forward against the lungs, so as to squeeze and stop their movements, thus preventing the animal from breathing and in some instances the case may be complicated by a rupture of the stomach.

Treatment.—Do not waste any time. Puncture about three inches downward and forward from the point of the hip bone with a clean sharp knife, or any instrument that is clean and sharp. A special instrument made for this purpose, the trocar, is a very useful instrument.

Sometimes bloating becomes chronic, and if such is the case dissolve two teaspoonfuls of Turpentine in one-half pint of milk and drench the animal very carefully, as some of this drench may escape into the lungs and produce fatal pneumonia. Set a sheep upon its haunches to give the medicine; if it coughs let it down quickly to prevent strangulation.

INDIGESTION.

(*Dyspepsia*)

Cause.—Irritant food, damaged food, overloaded paunch or sudden change of diet may produce this disease. Want of exercise predisposes an animal to it and it is caused by woody or indigestible food. Food which possesses astringent (drying) properties tends to check the digestive secretions and may also act as an exciting cause. Food in excessive quantity may lead to disorders of the digestion and to this disease. It is very likely to appear towards the end of the protracted season of drought, therefore a deficiency of water must be regarded as one of the conditions which favors its development.

Symptoms.—Appetite diminished; rumination, or chewing the cud, irregular; tongue coated, mouth slimy, feces passed apparently not well digested and offensive in odor, dullness and fullness of the flanks. This disease may, in some cases, assume a chronic character, for in addition to the above mentioned symptoms, slight bloating of the left flank may be observed. The animal breathes with great difficulty and grunts with each respiration. The ears and legs alternately become hot and cold. The rumination, or cud chewing, at this stage ceases and the usual rumbling sound in the stomach is not audible. The passage of feces is entirely suspended and the animal passes only a little mucus occasionally. Sometimes constipation and diarrhoea alternate; there is a rise in temperature in many cases. The disease continues for a few days or a week in this mild form, while the severe form of the disease may last for several weeks. In the severe form the emaciation and loss of strength may be very great. There is no appetite, no rumination or rumbling sound in the stomach or intestines. The mouth is hot and sticky, the eyes have retracted in their sockets and the milk secretion has ceased. In such cases the outlook for recovery is unfavorable. The effected ani-

mals fall away in flesh and become very weak, which is shown by the fact that one finds the animal lying down.

On examination of sheep or goats which have died of this disease, it is found that the lining membranes of the fourth stomach and intestines, particularly the small intestines, are red, swollen, streaked with deep red or blushed lines or spotted. The lining of the third stomach is more or less softened and may be easily pealed off. The third stomach contains dry, hard food masses, closely adhering to its walls. In some cases the brain appears to become affected, probably from the pain endured and weakness and absorption of poisons generated in the digestive canal. In such cases there is weakness and a staggering gait; the sheep or goats do not appear to see, and will consequently run against obstacles. After a time it falls down and gives up to a violent disordered struggle. This delirious condition is succeeded by stupor and death.

TREATMENT.—Successful, if fed in its first stages on small quantities of roots, sweet silage or select grasses or hay. This should be offered several times daily. Very little food should be allowed if the animal is constipated, in which case give two to four ounces of Glauber Salts dissolved in a pint of hot water. When it cools, set the animal on its haunches and pour slowly and carefully. If they strangle or cough let them down, as some of the drench may escape into the lungs and produce lung complications. After the Glauber Salts have acted and if there is a lack of appetite and the animal does not chew the cud regularly, the following tonic will be found beneficial: Pulv. Gentian Root, one ounce; Pulv. Nux Vomica, one ounce; Pulv. Anise Seed, two ounces. Mix thoroughly and make into thirty-two powders. Give one powder two or three times a day well back on the tongue. The food must be rather laxative and of a digestible character. After an attack of this form of indigestion, ice cold water should be avoided. Food should be given in moderate quantities, as any excess by overtaxing the digestive functions may bring on a relapse.

JAUNDICE.

(*Liver Congestion—Inflammation of the Liver*)

Cause.—Jaundice or Liver Congestion is due to constipation where there is an inactive or torpid condition of the bowels and the bile which passes into the intestines is absorbed and produces a yellow staining of Jaundice. Jaundice is merely a symptom of a disease and ought to direct attention to ascertain if possible the cause or causes which give rise to it. Inflammation of the liver usually occurs as a complication of infectious diseases. It may also occur as a complication of intestinal catarrh, or in hot weather from overheating, eating decomposed or irritating food or from drinking stagnant water.

Symptoms.—The signs are sometimes obscure and their real significance is frequently overlooked. The most prominent symptoms are the yellowness of the white of the eyes and of the mucous membranes lining the mouth, appetite poor, body presents an emaciated appearance, the feces is light in color, while the urine is likely to be unusually dark and there is great thirst present. The gait is weak and the animal lies down more than usual and while doing so frequently has its head around resting on the side of its chest. Temperature is slightly elevated above normal and breathing is somewhat hurried.

Treatment.—Remove the cause if possible. Give Glauber Salts in three to four ounce doses, diluted in a pint of hot water permitted to cool and give at one dose. When drenching, be very careful, as some of the liquid may escape into the lungs and produce severe complications. Feed green food or hot bran mashes and supply them with a liberal quantity of pure water to drink.

LIVER FLUKE.

CAUSE.—The parasite that produces Liver Fluke in sheep has an oblong, flat, leaf-like body, brownish in color, measuring from one-fourth to one-half inch in length. Sheep become infected with this Liver Fluke from grazing on low marshy pastures infected by the larvae of Liver Fluke.

SYMPTOMS.—A sheep, when first infected with Liver Fluke, generally thrives as the parasites tend to stimulate the process of digestion, being located as they are in the liver, but eventually rumination becomes irregular, the sheep becomes anemic, weak and the visible mucous membranes of the mouth, nose and eyes become pale, bloodless, taking on a yellowish color as the disease progresses. Swellings will also appear under the jaw along the neck and under the lung cavity. The process of breathing becomes feeble and temperature irregular. Pregnant ewes will generally abort and nursing ewes' milk will become so deprived of its nourishing properties that the lambs become emaciated, although not necessarily affected with the Liver Fluke.

PREVENTION.—Move to non-infected pastures, supply the animals grazing on low marshy pastures with a liberal amount of salt, also introduce frogs, toads, carp, etc., into the marshy ponds, as they destroy the parasite in its first stages of development, feeding on their intermediate host, the snail.

MEDICAL TREATMENT.—This is of little value. After an animal once becomes infected with the parasite, it never makes a complete recovery, although Calomel administered in ten grain doses every two or three weeks appears to have a very good effect in some cases, if fed freely on nitrogenous food and permitted to drink well of pure running water.

LUNG FEVER.

(Pneumonia—Congestion of the Lungs—Pulmonary Apoplexy)

Acute congestion and inflammation of the spongy tistues of the lungs is frequently seen in sheep, the same as in other animals.

Cause.—Sheep that are overdriven are subject to Lung Congestion in acute or chronic form and sometimes Pulmonary Apoplexy, and especially when in a plethoric condition are predisposed to inflammation of the lungs. The exciting cause is very much the same as in different diseases of the air passage and it is not uncommon for the inflammation to extend from these parts of the lungs. However, there are a number of causes in addition to those already mentioned. It frequently results when sheep are accustomed to warm, comfortable quarters and are changed to cold, drafty pens, or shipping some distance in open stock cars during cold weather. In fact, any sudden chilling of the body is a common cause of lung disorders. Giving fat sheep too much exercise when they are not accustomed to it is a very frequent cause of Congestion and Inflammation of the Lungs. This may occur when they are chased by dogs, etc., or when driven to a distant market at too rapid a gait. Exercise during the hot summer months is apt to cause congestion of the lung substance, as well as heat stroke. Dipping sheep during cold weather may chill the body and result in this disease.

Symptoms.—If due to severe exercise, the animal appears greatly exhausted and the Congestion of the Lungs is marked. Death may occur at this stage of the disease. Inflammation of the Lungs usually begins with a chill and is followed by a high fever. The sheep stand most of the time and may eat nothing, or very little. The breathing is hurried at first, but when the lungs become

badly involved, it is also labored. The character of the pulse beat varies, depending on the extent of the inflammation and the stage of the disease. In most cases the pulse is full and quick during the early stages of the disease. A very weak pulse is present in severe and fatal cases of Pneumonia. The visible mucous membranes have a red colored appearance and there may be a slight discharge from the nostrils. The expression of the face is anxious and distressed in severe cases and rigors and chilling of the body occur. The respiratory sounds are more or less normal. The cough at first is deep and dry; later it becomes loose and moist. It may be accompanied by a hemorrhage during this stage of the disease. Other respiratory sounds are revealed by placing the ear to the side of the chest walls and listening to the sound of the lungs. This cannot be practiced in long wooled sheep with satisfaction, as the chest walls are so thick that the lung sounds are deadened, or the noise made by the animal hides the respiratory murmurs in the very early stages of Inflammation of the Lungs. A crepitating or crackling sound can be heard in the diseased parts and louder sounds than normal in the healthy areas. Later when the engorgement of the lung substance occurs and the air cells become filled with an inflammatory serum, the respiratory sounds are deadened, but on returning to the normal, a rattling sound occurs. These symptoms help greatly in determining the animal's condition and in watching the progress of the disease. The chances for the recovery depend on the extent and the acuteness of the inflammation. Careless handling, exercising, etc., lessen the chances for a favorable termination in the disease, but good care helps more to bring about recovery than the medical treatment. The recovery is more unfavorable in fat than in lean sheep, as the inflammation is usually more severe in the former. The course is from seven to twenty-one days and it may become chronic if the irritation is kept up. In such cases, unthriftiness is a prominent sign.

TREATMENT.—The preventive treatment in Pneumonia must not be overlooked. Briefly, it consists in avoiding such conditions as may predispose the animal to the disease or act in any way as an exciting cause. Careful nursing is a very important part of the treatment. The sheep should be given a comfortable, well ventilated shed and kept as quiet as possible. If the bowels become constipated, give two or three ounces of Castor Oil and feed sloppy food. As one attack predisposes the sheep to a second, it should be protected from severe cold, or the other extreme, heat, for a month after making a complete recovery.

The following prescription will be found very beneficial: Iodide of Ammonia, one-half ounce; Chlorate of Potassi, one ounce; Pulv. Nux Vomica, one ounce. Make into twenty-four powders and give one powder every four hours well back on the tongue. Continue this treatment until the animal has recovered.

LUNG WORMS, LAMB DISEASE.

(*Verminous Bronchitis*)

CAUSE.—Due to a white thread-like worm (Strongylus Filaria) varying in length from one to three inches. The worms affect and live in the trachea (windpipe) and bronchial tubes. Infected animals, in coughing, expel fertilized eggs which develop on the grass and stagnant water. The larvae are again taken up either in the drinking water or in eating grass or hay gathered on low marshy soil. Warm wet weather favors their development.

SYMPTOMS.—This worm is liable to attack a number of animals at the same time. The weakest sheep and young lambs are the first to show signs by coughing forcibly, distressing, hacking and convulsive in character. A stringy mucus is sometimes expelled during the spasm of coughing. This mucus contains worms which can be detected, or their ova observed under a magnifying glass.

In the latter stages of the disease, they cough severely at night. These attacks have a sub-acute character and prove very exhausting. The parasite by becoming entwined in balls severely affects the animal's breathing which is always remarkably labored in the latter stages of the disease. The animal refuses to eat, becomes emaciated, anemic, mucous membranes of the eyes, mouth and nose become very pale and the sheep die in convulsions from suffocation.

PREVENTIVE TREATMENT.—Avoid grazing your sheep on low marshy soil, especially during warm wet weather. Young lambs and weak ones are especially susceptible to this disease.

MEDICAL TREATMENT.—The writer has tried various treatments as fumigation with different substances and injection of remedies into the windpipe by the use of a hypodermic syringe, etc., but none have proven very successful, from a practical standpoint. I would recommend placing the affected animals in a tightly closed barn or shed, in the center of which place a pan of red hotcoals and cover with Sulphur.

A person should remain in the barn or shed as long as he possibly can and after the fumes become so irritating that he cannot endure them any longer, he should immediately make his exit. The sheep should be compelled to stay a minute or two longer and then quickly open the doors and windows. Repeat this treatment once or twice a week. Feed affected animals well. Give them fresh water to drink and protect them from exposure. This treatment, as above described, has given very good results, providing the parasites were not too numerous.

SCAB.

(*Mange*)

CAUSE.—The mange mite (Psoroptes Communis). This parasite is equipped with stylets which pierce the

skin at the seat where the mange mite penetrates the skin, and produces small red spots followed by a blister filled with serum, which ruptures, the serum drying and forming a small scab. It is in this way that innumerable mange mites cause the piling up of scabs thus producing a very scaly condition. As Mange advances, the scaly patches eventually pile up until they attain the thickness of one-half inch, unless these scabs have been severely rubbed.

Symptoms.—Very easily detected, as a bunch of sheep that have been recently infected will be uneasy or restless, rubbing against fences, posts, brush, etc., causing bunches of wool to loosen. The itching seems to be more intense at night and during warm weather. The affected animals will even make attempts to bite themselves, due to the agony produced by the mange mite. If the skin is examined by the aid of a magnifying glass, the mange mite can be easily noticed, or by scraping the skin with a knife and placing the scabs on a dark paper and exposed to the warmth of the sun, the mange mite moving about can readily be seen with the naked eye. Mangy sheep become very poor and eventually die.

Prevention.—This is important, for although the disease is treated with very good results, the mange mite annoy the sheep until they become very weak and emaciated and the loss of wool is enormous due to the affected animal continually rubbing against fences, brush, etc.

Treatment.—Consists of using various dips, as Lime and Sulphur, which is recommended by the United States Bureau of Animal Industry. This is very effective and inexpensive. Scabby sheep should be dipped a week or ten days after shearing; two dippings are necessary at the interval of ten days. After dipping, move to non-infected range or pastures.

TICK.

(*Louse Fly*)

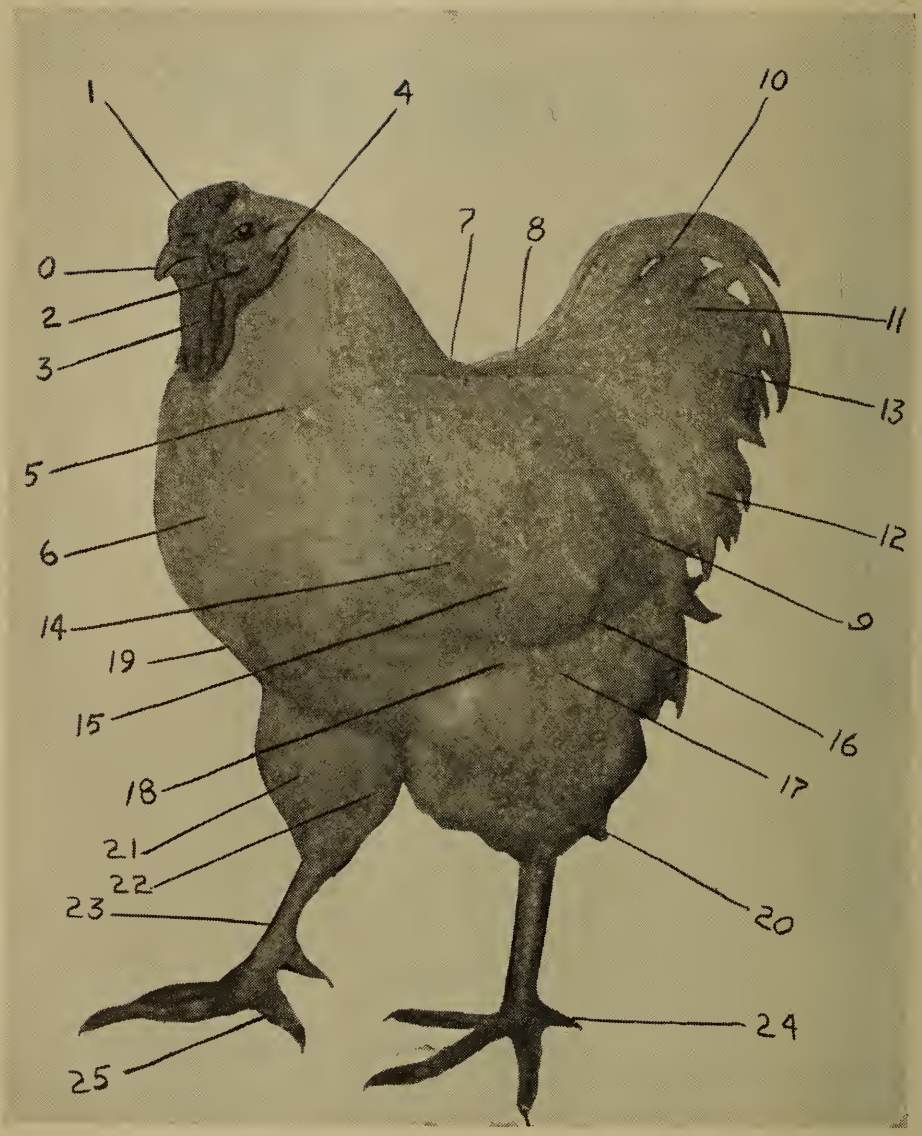
CAUSE.—The tick that infects sheep has a very small head sunken into its round body. The head possesses a flexible trunk or snout that penetrates the skin. Through this trunk, the ticks derive their nourishment by sucking the blood from the body of the sheep. The tick is also provided with three pairs of legs. The female lays her young in the form of a spun egg (cocoon) which is oblong in shape and brown in color. This egg is cemented to the wool of sheep where young ticks are hatched in about four to six weeks.

SYMPTOMS.—Long wooled sheep are more susceptible to this tick as their wool provides shelter for both the tick and its eggs. After shearing the sheep the ticks have a tendency to leave the body and to migrate to the legs or to unshorn lambs where their snouts or trunks pierce the skin which appears to become infected, producing a swelling and inflammation. The infected sheep run, scratch and bite themselves. When these ticks become developed in large quantities, they produce a paleness of the mucous membranes of the eyes, mouth and nose, as the ticks suck large quantities of blood, which produces an anemic condition. The sheep become poor, weak and unthrifty.

TREATMENT.—Satisfactorily treated by dipping infected sheep in Coal Tar dips or Emulsions of Crude Petroleum. Shearing the sheep has a good effect, but care must be exercised as the ticks then rapidly migrate to the lambs.

DISEASES OF POULTRY

CAUSE, SYMPTOMS AND TREATMENT



LOCATION OF PARTS OF THE FOWL.

Location of Parts of the Fowl

0. Beak.
1. Comb.
2. Face.
3. Wattles.
4. Ear lobe.
5. Hackle.
6. Breast.
7. Back.
8. Saddle.
9. Saddle feathers.
10. Sickles.
11. Lesser sickles.
12. Tail coverts.
13. Main tail feathers.
14. Wing bow.
15. Wing coverts, forming wing bar.
16. Secondaries, wing bar.
17. Primaries or flight feathers.
18. Flight coverts.
19. Point of breast bone.
20. Fluff.
21. Thigh.
22. Knee joint.
23. Shank.
24. Spur.
25. Toes, or claws.

PREFACE

This chapter, as its title indicates, is to give to the Students and Veterinary Profession a general view of the diseases of poultry, their causes, symptoms and treatment in a condensed and yet in a complete form.

Thousands of dollars worth of poultry are lost each year because of the veterinarians not having for immediate reference a book giving full information regarding the causes, symptoms, and treatment of diseases, with reliable and authentic advice on what to do for poultry that are sick or unthrifty.

If this brief chapter proves itself of value to our students to which it is most fraternally dedicated, the writer will feel himself amply repaid.

CHARLES J. KORINEK, V. S.

CHAPTER III.

AIR SAC MITE.

CAUSE.—Produced by a parasite called Cylodites Nudus, which bears a close resemblace to the parasite causing mange or scabies in the domesticated animal. Owing to the peculiar construction of their breathing organs fowls are more susceptible to parasites than animals. In addition to effecting the lungs, the Air Sac Mite may extend its operations to the intestines, kidneys, liver and bones.

SYMPTOMS.—Unthriftiness is first noticed, but after the parasites become numerous, the fowl shows signs of difficult breathing, perhaps terminating in bronchial pneumonia. In some cases death occurs without apparent cause. The bird will be inactive, becomes separated from the rest of the flock, comb pale, head drawn close to the body, wings hang pendulous, lose flesh, breathing becomes hard, coughing, sneezing and a rattling from the mucus in the windpipe is heard. Death is produced from suffocation.

TREATMENT.—Separate the sick from the healthy fowls. Disinfect coops and runways of both sick and healthy birds with Crude Carbolic Acid, undiluted. Also fumigate the fowls in their coops with steam from hot water and Pine Tar. This may be done by placing the water and Tar in a pan and then inserting a hot stone or brick in the solution. This perhaps is the simplest method of fumigation. Also mix Sulphur in their feed regularly.

APOPLEXY.

(*Hemorrhage of the Brain*)

Due to the rupture of a blood vessel of the brain and pressure from the escaping blood.

CAUSE.—Mechanical injuries, straining when laying eggs (hens are frequently found dead on the nest from this cause), overfeeding, stimulating food, etc., all tend to produce apoplexy.

SYMPTOMS.—Appear very suddenly, bird is seen to walk unsteadily, falls, or perhaps is found dead.

TREATMENT.—In mild attacks, apply cold water or ice to fowl's head until thoroughly cooled. Give one-half grain of Calomel, feed soft food, compel the bird to exercise. Owing to the loss of blood a tonic will be necessary. Pulv. Gentian Root, Pulv. Saltpeter, Capsicum and Ferri Sulphate Pulv.) equal parts one ounce. Mix and place one teaspoonful in feed for every twenty-five fowls. This tonic purifies and builds up the blood, just what is needed in this particular condition.

BALDNESS.

(*Favus*)

CAUSE.—Due to fungi.

SYMPTOMS.—The first noticeable sign is the whitish appearance of the comb due to gray spots about the size of a pin head. As the disease progresses, this condition spreads to other parts of the body; the feathers look rough and dry and break easily. The fowl grows weaker, refuses to eat and if not properly treated, dies.

TREATMENT.—Remove the scabs by separating the feathers and using a brush. Apply Sulphur Ointment. Repeat this treatment after two or three days. Great

care must be taken to prevent the fowl from chilling or taking cold.

BEAK AND THROAT OBSTRUCTION.

CAUSE.—Lodgment in the beak or food canal of a foreign substance, such as a kernel of corn, sunflower seed, bone, etc.

SYMPTOMS.—Fowl jerks its head suddenly and frequently attempts to swallow. If a close examination is made the foreign body can be felt from the outside.

TREATMENT.—For the removal of such obstructions, no special treatment is needed further than to use care and avoid any injury to the beak or throat. Feed nutritious food, as wheat bran mashes and vegetables and see that they have a liberal quantity of good pure water at all times.

BLACKHEAD.

(*Infectious Entero Hepatis of Turkeys*)

CAUSE.—Due to a protozoa taken into the system with the food or drinking water. This parasite enters the caeca which becomes inflamed and discolored and the liver is enlarged and studded with yellowish spots about the size of a pea.

SYMPTOMS.—Although this disease is termed Blackhead, the discoloration of the head is not necessarily present in all cases; neither is this condition confined to this particular disease. One of the first symptoms is loss of appetite, followed in most cases by diarrhoea. The fowl becomes weak and loses weight rapidly. Examination of the liver after death will determine whether or not death has been caused by Infectious Entero Hepatitis. The dead birds should be burned to prevent the spread of the disease.

TREATMENT.—Prevention is one of the most import-

ant factors as this disease is very contagious and the protozoa once implanted in the turkey runs is almost impossible to eradicate. Provide clean, well ventilated coops and feed clean, wholesome food and good fresh water to drink.

MEDICAL TREATMENT.—Give Bismuth Salicylate and Quinine Sulphate each one grain two to three times a day. Also mix Hyposulphite of Soda in the proportion of two to four grains to every fowl in their drinking water twice daily. Disinfect coops and runs with Crude Carbolic Acid, undiluted.

BODY LICE.

CAUSE.—Insanitary conditions. Communicated by direct contact.

SYMPTOMS.—Young chicks become emaciated and die quickly. Older birds withstand the parasite much longer, but in time show signs of uneasiness by dusting themselves frequently. The comb and wattles become pale and bloodless, the feathers rough, dry and brittle. The birds grow weak, poor and eventually die.

TREATMENT.—Dust the birds with the following: Sulphur, one part; Napthaline, one part; Tobacco Dust, twenty-eight parts and seventy parts of middlings. Powder finely and mix well together and dust the birds once daily. Also sprinkle freely in the dust baths.

BRONCHITIS.

CAUSE.—Exposure to dampness, cold drafts of air, inhaling irritating gases, vapors or dust. The fowls should be carefully examined, as bronchitis is occasionally caused by the presence of gapeworms.

SYMPTOMS.—Loss of appetite, the bird moves about slowly, breathing with difficulty and making a sort of whistling sound accompanied by a cough. As the disease

progresses, there will be a peculiar bubbling sound from breathing due to an excessive accumulation of mucus in the windpipe. At this stage of the disease the bird becomes very weak and if not properly treated and cared for will rapidly lose strength, the feathers will become rough, head and wings droop, and the bird dies.

TREATMENT.—This disease is most satisfactorily treated by placing the affected birds in warm, dry, well ventilated quarters, admitting sunlight if possible, but excluding all drafts of air. Feed stale bread, middlings, etc. Also place the fowls in a moderately air tight coop and compel them to inhale steam from hot water and Turpentine. This is readily done by placing the water and Turpentine in a pan and then insert a hot stone or brick in the solution. Force them to inhale this steam from twenty to thirty minutes twice a day. Also add Chlorate of Potash to their drinking water, one teaspoonful to every twenty-five aged fowls. To chicks add one-fourth teaspoonful to every twenty-five. If the weather is favorable and the above treatment is followed, bronchitis yields very favorably.

BUMBLE FOOT.

(*Corns—Deep Bruises—Abscesses*)

CAUSE.—Sharp-edged or narrow perches which bruise the feet or where the perches are high, heavy fowls often injure their feet by alighting on stones or other hard objects.

SYMPTOMS.—The bird limps or hobbles about, moving with great difficulty. Examination will show the foot to be hot and tender to the touch.

TREATMENT.—Wash with clean, warm water and in some cases it is advisable to apply Hot Flaxseed poultices. When soft spots or abscesses develop, lance them with a clean, sharp knife. After abscesses and bruises are opened, treat them antiseptically by washing with a

solution of Carbolic Acid, one teaspoonful to a pint of water. The foot should be bandaged to keep out dust and dirt.

CATARRH.

Cause.—Exposure; poorly constructed coops which admit rain or drafts. Weak birds are very susceptible to Catarrh.

Symptoms.—The bird is dull, moves about slowly, coughing or sneezing; appetite is poor, the mucous membrane of the air passage becomes inflamed and the breathing difficult, especially through the nose. The discharge from the nostrils at first watery, becomes mucus-like and thick and sticky, closing the nose, causing the bird to breathe wholly through the mouth with a wheezing sound.

Treatent.—The cause of Catarrh shows the necessity of clean and comfortable quarters for the fowls. Keep the birds strong and vigorous by feeding clean, nourishing food.

Medical Treatment.—To each fowl administer in their drinking water or feed: Chlorate of Potash, one grain, twice daily.

CHICKEN POX.

(*Sore Head—Warts*)

Cause.—These diseases are due to low forms of parasites or fungi and occur most frequently in wet weather especially if the coops are leaky and allow the rain to fall on the droppings, causing mold or fungi. Poor ventilation and lack of light also promotes the growth of fungi.

Symptoms.—The disease is usually confined to the head and affects principally young chickens, pigeons and turkeys, but rarely ducks and geese. The infection ap-

pears in form of yellowish warts or nodules about the nose, eyelids, comb, wattles, under the wings, or any unfeathered place. The warts vary in size from that of a pin head to the size of a pea and they discharge a fluid which at first is thin and watery but as the disease progresses, it becomes thick and sticky, yellow in color and fetid in smell. At this stage the appetite is poor, the feathers appear rough, and where the eyelids are affected, as in most cases, the bird cannot see, fails to eat, becomes emaciated, loses weight and strength rapidly and if not properly treated, dies.

TREATMENT.—This disease is very contagious, therefore the coops and runs should be disinfected with Crude Carbolic Acid, undiluted. In the drinking water add Hyposulphite of Soda in the proportion of one to two grains to each fowl (one-half grain to chicks). Wash the nodules or warts about the head with Carbolic Acid solution, one teaspoonful to a quart of water. Feed easily digested food, such as vegetables or warm bran mashes.

CONGESTION OF THE LIVER.

CAUSE.—Lack of exercise, overfeeding, tainted or moldy food, infection, or impure blood.

SYMPTOMS.—Birds suffering from this disease seldom show signs of sickness and it is well to dissect the fowl after death to ascertain the exact cause. If death is caused by Congestion of the Liver, the organ will be greatly enlarged and easily torn.

TREATMENT.—If the fowls are fat and sluggish, compel them to exercise by driving them about. Also give fifteen to twenty grains of Epsom Salts to each affected fowl. Feed laxative foods that are easily digested, as vegetables and warm bran mashes. They are cooling and relieve congestion.

CONGESTION OF THE LUNGS.

(*Pulmonary Congestion*)

CAUSE.—Exposure; the bird chills, causing contraction of the blood vessels near the surface of the body, thereby forcing a large quantity of blood to the internal organs; the small blood vessels in the lungs become distended with blood and rupture.

SYMPTOMS.—Rapid and difficult breathing; the bird appears stupid and sleepy and does not care to move about; appetite poor, wings drooping, plumage ruffled, a thick mucus, colored with blood, escapes from the mouth, comb and wattles show a dark-red color from lack of oxygen in the blood. This disease is of very short duration, the bird dying within a few hours. It is very common among young chicks and turkeys that are permitted to run out in the early spring rains.

TREATMENT—Medical treatment is of no value, as the disease progresses so rapidly that the bird dies shortly after the first symptoms appear. Sanitary surroundings, good light, pure air and exercise are essential. Do not allow the birds to stand out in the cold or rains, especially during the molting season. Keep your poultry strong and vigorous by feeding clean, nourishing food and give them pure water to drink.

CONSTIPATION.

(*Intestinal Obstruction*)

CAUSE.—Irritation of the membranes lining the intestines, caused by dry feed, glass or gravel; may also be due to parasitic worms. Obstruction may occur in any part of the intestines although the external opening is the part most frequently affected.

SYMPTOMS.—Bird appears dull and stupid, walks with difficulty and attempts frequently to expel the ob-

structing material. The appetite is poor and the feathers rough. By examination and manipulation the obstruction may be located. Dried masses of excrement by adhering to the feathers sometimes block the outer opening of the intestines.

TREATMENT.—Remove the waste matter clinging to the feathers with warm water or by clipping the feathers off. If the Cloaca is obstructed, give injections of Sweet Oil or Olive Oil with a small bulb syringe. Also give one to two grains of Calomel and feed clean food and soft mashes containing Pulv. Gentian Root, one grain to each fowl twice daily. This stimulates the worm-like movement of the bowels and assists in expelling their contents.

CROP IMPACTION.

(*Obstruction, Paralysis, Inflammation, Catarrh*)

CAUSE.—Errors in feeding; birds that are not fed regularly are predisposed to any of the above conditions; may also be due to swallowing large pieces of bone, thread, nails, pins, glass, gravel, etc.

SYMPTOMS.—Loss of appetite, frequent attempts to swallow, crop greatly distended and hard on pressure; eventually the food decomposes and a liquid may escape from the mouth and nose. The bird appears dull, stupid and sleepy, comb pale, feathers rough, beak open, owing to pressure on the windpipe. If caused by swallowing sharp objects, they may penetrate the crop and skin, causing a gangrenous condition. Grain in the crop will sometimes send out sprouts of considerable lengths.

TREATMENT.—If no sharp objects are present, give two teaspoonfuls of Sweet or Olive Oil. This will lubricate the esophagus and crop. Manipulate the crop upward, forcing the food gently through the mouth, adding oil occasionally. If, however, sharp objects penetrate the crop it is best to remove them through an artificial

opening. Clip the feathers from around the intended seat of operation and wash the clipped surface with a Carbolic Solution, one teaspoonful to a pint of water. The incision should not be over one-half inch long and should be made as high as possible and in the center of the crop. After removing the contents, sew up with ordinary thread and needle and wash occasionally with the above antiseptic solution. The operation is not difficult and will be successful if the parts are not too badly inflamed.

After-treatment consists of feeding very little food until the crop is fairly well healed. Feed soft bran mashes and vegetables. To the drinking water add Boracic Acid, one grain, twice daily. It relieves the catarrhal condition that is present, such as irritations of the crop and intestines.

DIARRHOEA.

(*Gastro-Intestinal Catarrh—Enteritis*)

Cause.—Inflammation of the digestive organs can be traced in every instance to the quality or quantity of food and water consumed. The food or water may contain parasites, or large quantities of mustard, pepper, or may be moldy or tainted.

Symptoms.—Loss of appetite, the feathers appear rough, the crop is sometimes paralyzed and distended with gas, the bird moves slowly, the droppings vary in color from a white to a yellow or a green and finally becomes tinged with blood; at this stage there is a rise in temperature accompanied by great thirst and signs of pain. Mild cases of simple diarrhoea if not properly treated when first symptoms appear, will develop the same severe conditions described above.

Treatment.—Determine the cause and remove it if possible. See that the food is clean and nutritious, the coops well ventilated, the runs well lighted. Sunlight is very beneficial. Avoid exposures, drafts and damp-

ness. Place oatmeal in their drinking water, also give two grains of Bismuth mixed with dough and make into a small pill. Give one every six hours.

When in addition to the above symptoms a bloody discharge is present, give six drops of Tincture of Catechu every four hours. Warm mashes made of bran or oatmeal are very nourishing and soothing to the intestinal canal.

DIPHTHERETIC ROUP.

(*Diphtheria*)

Cause.—Due to a specific germ. The disease is very contagious and is communicated by direct contact. Great care should be exercised, therefore, when showing or buying birds. Any new birds to be added to the flock should be kept in separate pens for a week or two to make sure they are in good condition.

Symptoms.—The first symptoms are similar to those of catarrh or cold. A clear, watery liquid escapes from the eyes and nostrils, the head is drawn in toward the body, the feathers appear rough, the breathing fast, the temperature rises from three to five degrees above normal. The bird walks about as if blind, sneezing, swallowing with difficulty, and showing signs of great weakness. If the mouth is open small white spots or elevations will be seen on the back of the tongue. There may be diarrhoea of a green or yellow color. As the disease progresses the discharge from the nose and eyes becomes thick and stringy, obstructing the air passages and gathering in large quantities between the eyelids. The mouth, throat and tongue are very much inflamed and swollen and in most cases it is impossible for the bird to make a sound. Recovery is doubtful after the disease has reached this stage.

TREATMENT.—Isolate the affected birds in some clean, warm, light, well ventilated quarters, excluding drafts. Dissolve thirty grains of Chlorate of Potash in one ounce of water and one ounce of Glycerine, and to the average sized fowl give one teaspoonful three or four times a day. To chicks give one-fourth the dose. When the scum loosens in the back part of the tongue, remove gently. Care should be taken so as to prevent bleeding. Feed soft, nourishing food.

DOUBLE-YOLK EGGS.

Eggs are frequently found with two yolks. This condition is produced by two ovary capsules bursting at about the same time and gaining entrance together into the oviduct where they are concealed in the same shell. Double-yolked eggs are larger than normal and may injure the oviduct when expelled. When hatched they produce twins or abnormal chicks.

DROPSY.

(*Ascites*)

CAUSE. — Generally due to irritating, indigestible food, causing inflammation of the membraneous lining of the intestinal cavity.

SYMPTOMS.—The abdomen becomes enlarged, is tender to the touch and contains a watery fluid, the movement of which can be heard in most cases by pressure on the swollen parts. The bird appears stupid, the comb pale and the appetite poor.

TREATMENT.—Unless the bird is very valuable, treatment is not advisable. In case the bird is valuable, give one grain of Potassium Iodide twice daily in the feed or drinking water. Also feed nourishing food as beef-scraps, vegetables, wheat bran mashes, etc.

EGG BOUND.

(*Difficult Laying; Obstruction of the Oviduct*)

CAUSE.—Due to the eggs being too large, the bird too fat, or to the absence of the secretions lubricating the oviduct.

SYMPTOMS.—The first signs are scarcely noticeable but soon the feathers appear rough, the bird becomes dull and moves slowly, making frequent efforts to expel the egg.

TREATMENT.—Remove the egg by injecting Sweet Oil, assisting the bird with gentle pressure. In some cases it is well to puncture the egg and collapse the shell. If the bird is very fat, reduce by careful feeding. If the bird is of normal size, the trouble is probably due to the absence of lubricating secretions of the oviduct, in which case the following tonic should be given: Pulv. Ferri Sulphate, Pulv. Gentian Root, each one dram. Mix and make into thirty powders. Give one powder two or three times a day in their feed for a week or ten days.

EGG EATING.

CAUSE.—Is usually due to lack of shell-building material in the food; in such case the shell of the egg is thin and easily broken and the fowl craving the lime contained in the egg shell, naturally contracts the habit.

TREATMENT. — Supply ground bone and oyster shells. Feed green food such as cabbage, kale, potatoes, carrots, etc.

EGGS WITHOUT SHELLS.

(*Soft-Shelled Eggs*)

CAUSE.—Deficiency of shell material; or it is possible that fright sometimes causes premature expulsion of the eggs before the shell is formed.

TREATMENT.—Feed ground bone, oyster shells. They contain egg shell producing material. Perhaps the best results are obtained when mixed with wheat bran. Also feed vegetables such as cabbage, potatoes and carrots.

FEATHER PULLING.

(*Feather Eating*)

CAUSE.—Irritation of the skin due to lice, mites, or to lack of exercise and improper food.

TREATMENT.—Feed meat, ground bones and vegetables. Place the food where the fowls are compelled to scratch and work to obtain it. Dust the fowls with Powdered Aloes.

If due to lice, treat the same as recommended under the heading of Lice.

GAPES.

(*Verminous Tracheo Bronchitis*)

CAUSE.—A red, parasitic worm, the male measuring about one-fifth of an inch and the female one-half an inch in length. Fowls become infected by eating worms containing this parasite or its eggs, and by coming in contact with other birds suffering from the disease.

SYMPTOMS.—The most noticeable symptom is frequent gaping; the Gapeworms attach themselves by their mouths to the walls of the windpipe where they suck the blood which nourishes them; they cause irritation and inflammation of the windpipe, bronchial tubes and lungs; breathing is difficult and the bird loses strength rapidly; windpipe eventually becomes totally obstructed and the bird dies from suffocation and exhaustion. Young, weak chickens are more susceptible to this disease than strong ones.

TREATMENT.—Separate the sick birds from the

healthy ones. Clean and disinfect the coops and runs. Burn all manure. Remove the worms from the windpipe by the use of a feather, from which the fan has been stripped, leaving only a small brush at the end. Dip the feather into Oil of Turpentine or Coal Oil, removing the surplus liquid by drawing the feather between the fingers. Now insert the feather into the windpipe of the bird and by turning gently you will dislodge the worms from their attachments. Repeat this treatment once a day for two or three days. Disinfect coops and runs with undiluted Crude Carbolic Acid. Feed good nutritious food as wheat bran mashes, etc.

HEAD LICE.

CAUSE.—Result of insanitary conditions and lack of care. Communicated by direct contact with infected birds, or by infected coops or brooders.

SYMPTOMS.—The head soon becomes denuded of feathers, and also sore by being constantly scratched with the feet. If not properly treated the chicks weaken and die.

TREATMENT.—An ointment made of one part Sulphur and four parts Lard well mixed and applied two to three times will exterminate the lice. If the fowl is run down in condition, feed good nutritious food as wheat bran mashes.

HOW TO FEED YOUNG POULTRY.

Withhold all food for at least eighteen hours; then feed stale bread moistened with boiled milk every three hours. When they are three or four days old, feed rolled oats, ground corn moistened with pure water, finely chopped meat and boiled vegetables. Feed them often and you will be well repaid by their rapid growth, strength, and the low death rate. After they reach the

age of one week or ten days, watch them closely and regulate their feed to their apparent needs.

INCOMPLETE EGG.

(*Abortion*)

CAUSE.—Irritation of the oviduct; improper secretion of albumen or internal egg-producing material.

TREATMENT.—Careful feeding will overcome this condition. Warm wheat bran mashes, ground bone, beef scraps, all tend to allay the irritations of the oviduct and stimulate the secretions of albumen.

JAUNDICE.

CAUSE.—Obstruction of the bile duct, due to rich, nitrogenous food and insufficient exercise.

SYMPTOMS.—Disease is not easily detected. The yellow color of the wattles and comb is the first symptom; the appetite is variable, the feathers appear rough and dry, the head is retracted, and the bird finally dies owing to the absorption of bile in the blood.

TREATMENT.—Change food. Feed upon a vegetable diet, also give one grain of Calomel, which is particularly useful in a case of sluggish liver in poultry. Also give one grain of Pulv. Gentian Root and one grain of Bicarbonate of Soda, twice daily in feed.

MANGE.

(*Scabies of the Body*)

CAUSE.—Due to a parasite that resembles the mite.

SYMPTOMS.—When the affected bird is closely examined large quantities of scales or scabs are found in the soft feathers. The appetite is poor; the bird walks slowly about showing signs of uneasiness. If the disease is

allowed to run its course, the bird grows weak and eventually dies. The disease is easily transmitted from one bird to another and should be treated without delay.

TREATMENT.—Disinfect roost, coops and pens with undiluted Crude Carbolic Acid. Apply to the irritations that present themselves on the body of the birds: Sulphur Ointment twice a week and feed good nourishing food as wheat bran mashes and vegetables.

PIP.

(*Inflammation of the Mouth*)

CAUSE.—Irritations, injuries, or micro-organisms. It is sometimes caused by nothing more than a dry condition of the mucous membrane due to the bird breathing through the mouth when suffering from respiratory diseases.

SYMPTOMS.—Dryness of the mucous membrane of the mouth; especially the part covering the tongue, which becomes hard and ragged, forming rough edges along its sides. These dried portions become loose and partially detached from the tongue, interfering with its movements and causing more or less pain and annoyance.

TREATMENT.—Do not forcibly detach these pieces, but assist nature to remove them. This can be accomplished by mixing Glycerine and Water, equal parts, and dropping into the mouth with an ordinary syringe or dropper. It is advisable to add Boracic Acid, one teaspoonful to every gallon of drinking water, which will prevent the entrance of parasites into the blood.

RED MITE.

CAUSE.—These grow spontaneously in favorable surroundings, as the interior of poultry houses and brooders containing numerous cracks and crevices.

SYMPTOMS.—This mite is a blood-sucker; irritates the skin and sometimes causes sores to form on the body of the chick. The birds grow stupid and weak and die rapidly if not properly treated. Older fowls withstand the irritation of mites much longer, but do not thrive, or lay regularly, and will finally die if the insects become too numerous. The insect may be transmitted to horses, cattle, and even to man.

TREATMENT.—Paint the roosts and spray the interior of the coops and runs with Crude Carbolic Acid, undiluted, being very careful that the solution reaches the bottoms of the cracks and crevices. Also paint the interior of brooders with the same solution.

RHEUMATISM.

(*Leg Weakness—Gout—Paralysis*)

CAUSE.—Damp coops and pens, lack of ventilation and improper food.

SYMPTOMS.—Fowl refuses to stand or walk, and on examination, the legs are found to be swollen and painful, especially about the joints. In some cases suppuration of the joints takes place and they become open running sores. The bone finally becomes diseased and the fowl dies.

TREATMENT.—Preventive measures are first to be considered. See that the coops and pens are clean and dry. Avoid drafts. Feed vegetables, also wheat bran mashes. Give internally Salicylic Acid, one-half grain, twice daily. When the legs are swollen and sore apply Zinc Ointment once or twice daily.

SCALY LEG.

(*Scabies*)

CAUSE.—Due to a mite that burrows under the scales of the leg.

SYMPTOMS.—White, scaly-looking scabs form about the upper part of the foot. The feet and legs become swollen and painful as the disease progresses and if not checked will result in lameness, inflammation of the joints, and the toes may slough off. Great care is necessary as the disease is very easily transmitted from one bird to another.

TREATMENT.—Use boiling water or Crude Carbolic Acid, undiluted, on the perches. Wash the feet and legs with warm water and soft soap. Dry well and apply Carbolated Ointment. Repeat the above treatment every other day for a week.

SORE MOUTH.

(*Aphtha; Thrush*)

CAUSE.—A vegetable parasite called Oidium Albicans.

SYMPTOMS.—Inflammation of the mucous membrane lining the mouth, throat, gullet and crop, which finally terminates in white ulcerations. Other symptoms are swelling of the head, poor appetite and a rapid loss in weight and strength.

TREATMENT.—Isolate the sick from the healthy fowls. Give as much sunlight as possible, feed nourishing food, such as warm oatmeal mashes, kale, potatoes, etc. Add one grain each of Chlorate of Potash and Boracic Acid to a tablespoonful of water and give three or four times a day or oftener if they will drink it. A good disinfectant must be used to prevent the disease from spreading and I would recommend the use of undiluted Crude Carbolic Acid about the coops and poultry runs.

TUBERCULOSIS.

CAUSE.—This dreaded disease is caused by the Bacillus of Tuberculosis. Damp, ill-ventilated, and poorly-

lighted coops are favorable to the development of the disease.

SYMPTOMS.—Except in advanced stages, this disease is not easily detected as it affects various organs, and considerable experience in post-mortems and a skillful use of the microscope is required to successfully diagnose a case.

TREATMENT.—Preventive measures should be practiced as the disease is incurable. Do not expose the fowls to cold wet weather. See that the coops are well ventilated and lighted and feed no contaminated food.

VENT GLEET.

CAUSE.—Constipation is perhaps the most common cause, the hard droppings causing irritation of the vent which is followed by inflammation and suppuration of the membranes lining the rectum and oviduct.

SYMPTOMS.—Frequent straining due to irritation. As the disease progresses a pus-like discharge is noticed. The disease may extend into the rectum or oviduct. The bird appears stupid, the plumage rough, the comb pale, and if not properly treated, dies a lingering death.

TREATMENT.—Preventive treatment is the best. Feed green food occasionally and warm bran mashes. This prevents constipation. When the bird strains frequently and a discharge is present the following solution should be injected: Sugar of Lead, two drams; Zinc Sulphate, one dram. Mix with two quarts of water. Inject about one ounce with a syringe twice daily until the discharge has ceased.

WHITE DIARRHOEA.

(*Fowl Cholera*)

CAUSE.—Germ (Bacilli of Fowl Cholera) gaining entrance to the body through the bowels, lungs or wounds

of the skin. Death results from toxic material produced while the germs are multiplying.

SYMPTOMS.—All poultry, cage or wild birds are subject to this disease. The first symptoms are loss of appetite; diarrhoea is present and the discharge is almost white in color and tinged with transparent mucus. The affected bird becomes separated from the flock, seems weak and stupid and appears to be asleep; feathers are rough, the wings droop and the head is drawn in toward the body; crop is generally full, owing to improper digestion. The comb is pale and bloodless, the temperature raised from three to five degrees above normal and the bird loses weight rapidly; it may die with convulsions and cries, or without a sound or struggle.

TREATMENT.—To grown fowls, give Zinc Sulphocarbolates in one-half grain doses three times a day in their food or drinking water. To chicks, dissolve thirty grains of Zinc Sulphocarbolates in two quarts of water. Saturate feed, as stale bread, etc., and give three times a day. Zinc Sulphocarbolates is an antiseptic especially prepared for septic conditions of the intestines, and very useful in treatment of White Diarrhoea and Fowl Cholera. In severe cases of diarrhoea, give Bismuth Salicylate, one grain, three times daily in feed or make into a pill with dough. When the fowls will eat, feed them clean, nitrogenous food that they can digest easily, as oatmeal mashes. It is also necessary to give them pure water to drink at all times. Disinfection of the premises is another essential factor in the treatment of this disease, and undiluted Crude Carbolic Acid is a disinfectant that we can rely upon at all times.

I cannot recommend vaccination as the serum is very difficult and expensive to produce and different breeds of birds require varying doses, therefore, vaccinating poultry for White Diarrhoea or Fowl Cholera is not attended with any great degree of success.

WORMS.

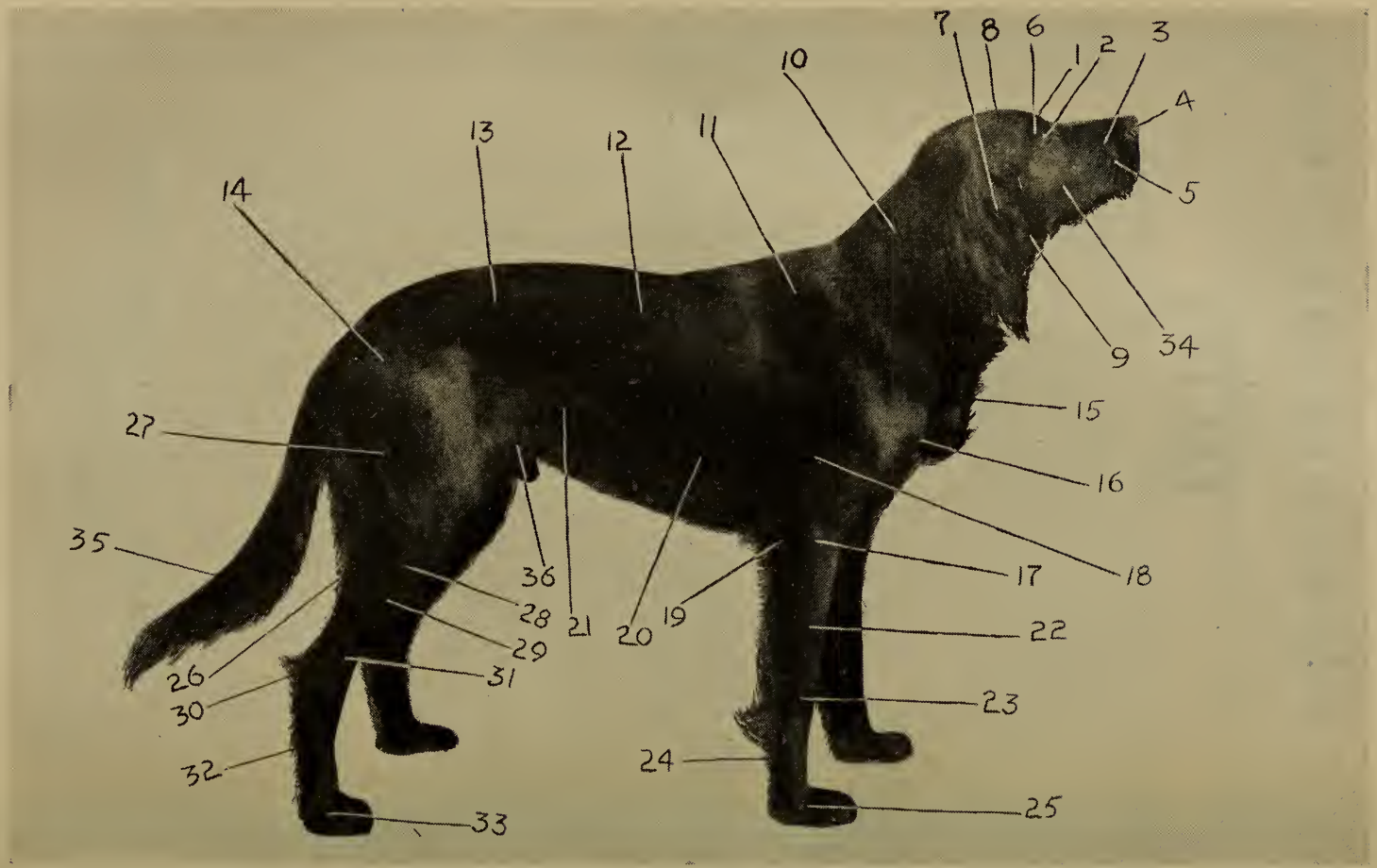
Cause.—Few fowls are entirely free from worms. The soil over which the chicks are permitted to run may be infected, or the food may contain the eggs or embryos of worms.

Symptoms.—The presence of worms in fowls may not be at once detected, since only a close observer would notice them in the droppings. If the birds eat well but remain poor, and the feathers appear rough and the comb and wattles pale, there is reason to suspect the existence of worms.

Treatment.—Preventive treatment is the best. Sprinkle the runs and coops regularly with Crude Carbolic Acid, undiluted. Give two drops of Turpentine in twice this quantity of Sweet or Olive Oil. This dose should be repeated in from six to eight days so as to insure the expulsion of the newly hatched worms or those that may have survived the first treatment.

DISEASES OF THE DOG

CAUSE, SYMPTOMS AND TREATMENT



LOCATION OF PARTS OF DOG.

Location of Parts of Dog

1. Forehead.
2. Junction of nose and forehead.
3. Nose.
4. Nostrils.
5. Muzzle.
6. Temple.
7. Ears.
8. Occiput.
9. Posterior angle of jaw.
10. Neck.
11. Withers.
12. Saddle.
13. Loins.
14. Croup.
15. Dewlap.
16. Brisket.
17. Arm.
18. Shoulder.
19. Point of elbow.
20. Ribs.
21. Flank.
22. Forearm.
23. Knee or wrist.
24. Pastern.
25. Toes.
26. Buttock.
27. First thigh.
28. Stifle.
29. Second Thigh.
30. Point of hock.
31. Front of hock.
32. Pastern.
33. Toes.
34. Cheeks.
35. Tail or stern.
36. Sheath.

PREFACE

In offering this chapter for the consideration of the Students as well as to the Veterinary Profession and others who are interested in the study of diseases of the dog I feel it will suffice to say that I have endeavored to the best of my ability to render the matter contained in the following chapter of as great *practical* value as possible, to present in the most plain and yet concise manner the nature, causes, symptoms, treatment, and prevention of each disease in the form in which it most frequently occurs.

I wish to express a hope that this chapter will be favorably received by all Students of Veterinary Science and the Veterinary Profession.

CHARLES J. KORINEK, V. S.

CHAPTER VI

ABSCESSES OF THE EAR

(Haematoma)

CAUSE.—Irritations or injuries to the ear. Washing dogs with irritating soap and not properly drying them causes dogs to have an itchy sensation which they constantly aggravate by scratching the ear with the paw and shaking the head and flopping the ears violently, resulting in this disease.

SYMPTOMS.—The dog will be noticed carrying the head to one side and shaking it frequently in a violent manner. It will also scratch the ear with the paw involuntarily. When the inner surface of the ear is carefully examined it will be found extremely swollen and have an abnormal appearance, will be stiff and extend out from the head. Great heat and pain will be evinced when pressure is applied. The puffy swelling inside the ear will contain a serous fluid which is very offensive in odor.

TREATMENT.—With a clean, sharp knife open the abscess and allow the bloody fluid to escape. Then dress the wound twice a day with clean cotton and a solution made from Tincture of Iodine, one dram, to one-half ounce of water. To prevent the dog from scratching and flopping the ears, which would cause further irritation, bind the ears to the head by means of a bandage or hood. Feed clean, wholesome, laxative food and compel him to exercise, as good physical condition and clean surroundings assist materially in healing wounds of the flesh.

APOPLEXY

(Congestion of the Brain)

Cause.—Congestion or rupture of the blood vessels of the brain, which causes a sudden arrest of sense and motion, the dog lying as if in a deep sleep. It seldom attacks young, but occurs frequently in fat dogs, especially if aged and not accustomed to exercise.

Symptoms.—They are very hard to detect, as the dog generally becomes unconscious before any violent symptoms are noticed, but there is generally unsteadiness in the walk, dizziness, deafness, blindness, constipation, etc., preceding an attack, but only a careful observer will notice them.

Treatment.—As this is a very dangerous disease, no time should be lost. The first thing is to relieve the head from the accumulation of blood to prevent further congestion and avoid inflammatory action. To accomplish this place the head well up and apply cold to the head by means of pounded ice in a clothbag. Loosen the collar around the neck and apply hot packs to the feet to induce the flow of blood to the lower extremities. Also give a physic consisting of one to two grains of Calomel. After the dog recovers from the fit great care will be required to prevent a second attack. The diet should be light and nutritious. Always avoid feeding too large a quantity at one time, to prevent overloading of the stomach. Also avoid excitement or excessive exercise on a hot day. A cathartic as Calomel should be administered when a dog shows any signs of constipation.

ASTHMA

Cause.—In some instances I believe it is hereditary, although in others no influence of this nature can be discovered. This affection frequently follows organic dis-

eases of the chest. The spasms of difficult breathing may be directly due to irritants inspired into the lungs, such as smoke, gas, or dust and cold air containing infectious matter. Overfeeding frequently produces this condition, as an abnormal distention of the stomach presses against the lungs and causes them to become inactive and spasmodic contraction of the muscular fibers of the bronchial tubes follows. Dogs with narrow chest cavities are predisposed to asthma, which condition is hereditary.

SYMPTOMS.—This disease is attended with difficulty of breathing and a sensation of constriction of the chest, giving rise to wheezing, coughing and general nervousness. The animal becomes emaciated, the hair has a rough, faded appearance, although it will continue to eat well. Constipation is generally associated with this disease.

TREATMENT.—Place the animal in clean, comfortable surroundings, exercise carefully as violent exercise would tend to aggravate the disease. Feed sparingly on nitrogenous food that is easily digested; also administer Fowler's Solution of Arsenic, four drops, twice daily. This can be placed on the food, as the dog will take it readily. If the bowels are constipated, give one to two tablespoonfuls of Castor Oil. Good care and careful feeding play a very important part in the treatment of asthma.

BARRENNESS

CAUSE.—Either the extreme of overfeeding and insufficient exercise or of overworking and insufficient supply of food. Contraction of the neck of the womb or atrophy of the ovaries may produce barrenness. There are also other conditions that produce failure to breed, such as inflammation or growths in the womb or ovaries, leucorrhea, etc.

SYMPTOMS.—If due to Leucorrhea there will be a

white, glary discharge from the vagina, which looks like curdled milk. It sometimes accumulates in the uterus and comes away in large quantities and there is a fetid smell. The animal generally becomes debilitated. In other cases, where there is a contraction of the womb or atrophy of the ovaries, no abnormal conditions will be noticed except that the animal fails to conceive when bred.

Treatment.—Use both local and constitutional treatment. Feed sparingly on nitrogenous food that is easily digested. Allow to exercise moderately and the bitch may become fertile, if no morbid conditions are present. If the animal is constipated administer one to two ounces of Castor Oil and if in a rundown, debilitated condition give Pulv. Nux Vomica, Pulv. Ginger Root, Pulv. Ferri Sulphate, each one dram. Make into thirty-two capsules and give one capsule three times daily.

BRONCHITIS

Cause.—Sudden change of temperature, etc., choking, drenching, inhalations of irritating material as certain vapors, dust, etc., containing infectious material; accumulations of gas in the stomach containing particles of food may be regurgitated up into the esophagus frequently producing bronchitis.

Symptoms.—The chief symptoms consist of fever, hurried breathing with a sense of tightness about the chest, but not always acute pain. The cough is severe and dry at first, but later expectoration commences. The discharge that is raised from the bronchial tubes at first is a clear, thin mucus, but afterwards it becomes thicker, more abundant and purulent. It is difficult for persons not accustomed to examining the chest to always distinguish the disease from pneumonia, if the case is one of severity. In mild cases the symptoms need not usually occasion much alarm.

Treatment.—This disease may be prevented fre-

quently by giving five to ten grains of Dover's Powder as soon as it is discovered that the dog has taken a cold. It is best given in the evening then placing the dog in a warm bed; also give some warm stimulants to drink as Tincture of Capsicum, five to fifteen drops in a teaspoonful of luke warm water. In the morning, give one to two grains of Calomel. If the above does not cut the disease short, then keep the dog confined to warm quarters and give inhalations of steam from hot water and Turpentine. For the cough, which is usually troublesome, give the following mixture: Potassium Chlorate, one dram; Liquor Ammonia Acetate, three ounces; Vini Ipecac, two drams; Tincture of Camph. Co., one-half ounce; Aqua Chloroform, quantity sufficient to make four ounces. Give one to two teaspoonfuls three or four times daily. Also feed nutritious food that is easily digested and permit the animal to have access to pure cold water.

BURNS AND SCALDS

There is considerable difference in the extent of injury from the burns produced by hot vapors, fluids, etc. In some cases, which are only superficial, there will be slight inflammation or redness produced, while in others the burn may be of severity and cause the death of the skin, followed by sloughing.

Treatment.—For Burns and Scalds of ordinary severity, I have derived excellent results from equal parts of Raw Linseed Oil and Lime Water, as it removes the soreness and restores the part to its normal condition. In cases where the skin is sloughed off, in addition to the above recommended, dust with Boracic Acid, two ounces; Corn Starch, two ounces; Tannic Acid, one-half ounce; Iodoform, two drams. Mix and powder finely. Place in sifter top can and apply two or three times daily to the moist, sloughing surface.

CANKER OF THE EAR

Cause.—Filth and dust, especially in long-eared hunting dogs, as the inner surface of the ear becomes dirty and damp from wading streams and running through tall, wet grass. This condition is not serious at first, but it will irritate the dog so as to cause him to shake his head and scratch the ear with his paw. Permit no filth to enter the ear as this will assist to develop a Canker, which becomes very painful.

Symptoms.—The dog shakes the head violently and scratches the ears with the paw and even howls from the severe pain produced. The ears will be moist and have a poked-out appearance, due to the swelling. As the disease progresses, there will be a very disagreeable discharge from the ear that can be very easily detected some distance from the animal. Ulceration eventually follows, affecting the internal structure of the ear, which condition is very difficult to treat.

Treatment.—Remove the cause, if possible. Then inject ten to fifteen drops of the following solution: Mild Chloride of Mercury, fifteen grains; Lime Water, four ounces. Shake well and apply to the ear as above mentioned two to three times a day. Place a small piece of cotton in the ear after each injection. Also place a hood over the ears or bandage them down with a cloth.

CATARRH

(Cold in the Head)

Cause.—The most common, perhaps, is exposure, especially after a dog has been used to warm closed quarters. Dogs used for hunting purposes, when in a poor condition, with their system weakened, are often victims of Catarrh.

SYMPTOMS.—Slight dullness. May not take food very well, hair standing to some extent, pulse not much affected, throat becomes sore. After the congestion passes off, exudation takes place, followed by discharge and it may be very profuse, but it need not alarm you. There is generally impaired secretion of urine, but breathing not much affected in most cases. We also have a discharge from the nose in other diseases, such as Distemper, Bronchitis, Pneumonia, etc.

TREATMENT.—The treatment should be constitutional as well as local. Place the animal in clean, well-ventilated quarters; feed good nourishing food, which is quite important. The following prescription is very beneficial in suppressing the secretion from the nostrils: Ferri Hypophosphitis, five grains; Quinine Sulphate, three grains; Pulv. Nux Vomica, two drams; Arsenous Acid, one-half grain. Make into twelve capsules and give one capsule two or three times a day. Give inhalations of steam from hot water and Oil of Eucalyptus for one-half hour twice daily. Permit the dog to exercise if the weather is favorable. If constipated give rectal injections and feed laxative food. Avoid giving physics in Catarrh, especially if there is fever present.

CHOREA

(St. Vitus Dance)

CAUSE.—Due to an irritation of the nervous system. It is especially associated with debility, although it may follow constitutional diseases, such as Distemper, etc. It is sometimes caused by a direct injury to the brain or spinal cord.

SYMPTOMS.—A continuous twitching of the muscles which is noticeable even though the animal sleeps. The muscles of the head may be affected, or those of one or both fore limbs or of a hind limb. An animal affected with Chorea will show an unsteady gait when walking

and usually becomes very poor, although it will have a very good appetite at all times.

Treatment.—In severe cases the dog will not, as a rule, respond to treatment. In milder cases, if taken in hand early, improvement may be brought about, but seldom a complete recovery. Many drugs have been tried in the treatment of Chorea, but the superiority of one medicine over another has not been practically demonstrated. Fowler's Solution of Arsenic given in from two to eight drop doses has been tried in a large number of cases and in my experience it has given the best results. The drug should be given at first in small doses and gradually increased as tolerance is established. If the physiological action of the Arsenic becomes manifested it should be discontinued for a few days. In severe cases, Sedatives are indicated. Of these, either Bromide of Potassi or Sodii should be given in ten to twenty grain doses, prepared in gelatin capsules and administered three or four times a day. Attention to the digestive organs and to the diet is necessary during the treatment. If the dog is constipated one or two tablespoonfuls of Castor Oil should be administered. Feed nitrogenous food that is easily digested and provide comfortable sleeping quarters.

COLIC

Cause.—Worms, indigestible or decomposed irritating food, compaction or obstruction, calculus, strictures of the intestines or it may be due to liver complication and animals swallowing sharp bones, etc. Several forms of poisoning may produce Colic.

Symptoms.—The dog evinces severe abdominal pain, usually with constipation and often vomiting. As a rule, there is no fever or quickness of the pulse. The pain, which is spasmodic, is relieved on pressure as the dog prefers to lie on his abdomen in many instances. The dog frequently eats green grass as this causes him

to vomit, which is nature's method of relieving the digestive tract of irritating material.

TREATMENT.—In cases which are not very severe, the application of hot cloths to the abdomen frequently affords relief. Ginger, ten to twenty grains, dissolved in a teaspoonful of water may relieve a mild attack, but when the above treatment fails the following is recommended: Fluid Extract of Cannabis Indica, one dram; Chloroform, one dram; Tincture of Capsicum, ten drops; Oil of Peppermint, ten drops; Morphine, three grains; water, quantity sufficient to make one fluid ounce. Give ten to fifteen drops every hour, if necessary. A physic is indicated in the majority of cases of Colic for the purpose of removing irritants or obstructions from the intestines. Calomel, one to two grains, is a very efficient drug, while Castor Oil is given with great difficulty and it should be administered only where diarrhoea is a complication of Colic. Rectal injections of warm water is very beneficial in the treatment of intestinal obstructions. It is good practice to give a dog some vermifuge after an attack of Colic, as worms frequently produce it.

CONSTIPATION

CAUSE.—Insufficient exercise, overfeeding or feeding decomposed or irritating foods. Dogs are predisposed to indigestion as they frequently swallow a large quantity of indigestible food without masticating it. Poor care and exposure to cold also frequently produce Constipation.

SYMPTOMS.—Constipation is often a complication of other diseases, the feces is dry-looking and may be more or less covered with a mucus. A prominent symptom is straining, attempts to defecate, the appetite is greatly impaired, the dog acts dull and stands with the head down or goes off to some quiet place and lies down. Protrusion of the rectum or piles may occur, especially

if the animal has eaten freely of dry, indigestible food. Colicky pains are sometimes manifested. Constipation occurring from causes other than a complication of diseases seldom takes on a serious form.

Treatment.—When a dog becomes constipated, all dry, indigestible food should be withheld. A soft, easily digested diet should be fed sparingly and a liberal supply of water allowed. In some cases it is well to exercise the dog. A physic of two to four ounces of Castor Oil should be given, but overdosing with physics avoided. The action of the physic should be assisted by injecting into the rectum warm, soapy water. Tonics which assist digestion by stimulating secretions of the bowels, should be administered, as Ferri Sulphate, one-half dram; Quinine, one-half dram; Pulv. Nux Vomica, one-half dram; Gentian Root, one dram. Mix and make into twelve capsules and give one capsule three or four times a day.

The above treatment must be persisted in until the constipated condition is relieved.

DIARRHOEA AND DYSENTERY

Cause.—Among the common causes of Diarrhoea and Dysentery can be mentioned irritating foods, sudden change in feed, decomposed matter, irritation from intestinal worms, imperfect mastication of food and its imperfect preparation for digestion, eating more food than the digestive organs can well digest, debilitated condition and irritation from indigestible food. The immediate cause is perhaps the irritated condition of the mucous membranes lining the intestines and a profuse secretion from the intestinal glands, nature's own method of removing poisonous or infectious matter from the digestive canal.

Symptoms.—Undue amount of liquid feces, the dog weakly and sickly, the coat staring and perhaps a sort of curdled fluid passes with the feces. If the fecal mat-

ter is tinged with blood, then it is called Dysentery, and this is more serious than common Diarrhoea. These conditions are generally associated with other diseases and should be examined very carefully for complications.

TREATMENT.—Treatment consists of keeping the dog as quiet as possible, feed sparingly on clean, easily digested food, as raw eggs, etc. It may be necessary to give a dose of physic, as Castor Oil in two to four ounce doses which is an excellent remedy for expelling irritants from the bowels without griping. After the cause or irritant from within the intestines is removed administer Protan, one-half ounce; Gum Catechu, one-half ounce; Zinc Sulphocarbolates, two grains. Make into sixteen capsules and give one capsule every four hours. This dose is prepared for a dog weighing forty pounds. To larger dogs or puppies give the same medicine in doses proportionate to their weight.

DISTEMPER

CAUSE.—Is due to a specific bacteria that is developed spontaneously, although I am of the opinion that insanitary surroundings, as dark, damp, ill-ventilated quarters play a very active part in its causation as well as food that is decomposed, contaminated or deficient in nitrogenous matter, or any condition that has a tendency to weaken the dog's constitution.

SYMPTOMS.—The first symptom revealed is a bad cold. The dog chills, the eyes become inflamed and a thin watery discharge oozes from them as well as from the nostrils, and, as the disease progresses, this thin waterly discharge takes on a pus-like character, becomes thick, yellow, tinged with blood, sticky and very offensive in smell. The dog vomits and has a dry, husky cough, the temperature rises from two to four degrees above normal, the pulse considerably weakened, breathing hurried and labored and the dog walks around in a staggering stupor and may even go into convulsions.

There is also a twitching of the muscles in many cases, as in Chorea, and this disease generally follows Distemper. In other cases, the dog will lie flat on the side, breathe with great difficulty, in a half-unconscious manner. This is a very unfavorable symptom, as lung complications have developed. Constipation or diarrhoea and even dysentery that is foul in odor may accompany this disease. The dog grows very poor, weak, the legs, nose and ears grow cold and clammy, and death follows. When the above described symptoms are present, the dog generally dies in from two to four days. If he lives through this stage, chances are that he will develop Chorea and be of practically no value.

Treatment.—As this disease runs its course in about eighteen days, good sanitary surroundings are very beneficial. Pure, fresh air, light, clean and comfortable place to lie upon are also necessary. Feed albuminous food, as raw eggs, milk, etc. Beef broth is very beneficial in many cases; also permit the dog to have free access to pure water at all times.

If vomiting accompanies the disease, the following prescription should be administered: Diluted Prussic Acid, nine drops; Morphine Hydrochlorate, ten grains; Bismuth Nitrate, one dram; water, quantity sufficient to make three ounces. Give one tablespoonful not oftener than six hours. This should be given a dog weighing forty pounds. Smaller or larger dogs should receive the same medicine in doses proportionate to their weight. When constipation is present, give two to four ounces of Castor Oil. The general medical treatment for Dog Distemper consists of the following: Quinine Sulphate, two drams; Potassi Nitrate, three drams; Zinc Sulphocarbolates, two drams. Mix well and make into twenty-four capsules and give one capsule every two or three hours. This dose should be proportionately increased in dogs weighing over forty pounds, or decreased for dogs weighing less than forty pounds. Of course a difference of five pounds should not be considered. Bathe the nose and eyes several times daily in a five per cent

solution of Boracic Acid. When complications, as Chorea or Pneumonia develop, use the treatments as described under their respective headings.

ECZEMA

(Surfeit)

CAUSE.—Derangements of the digestive canal, dogs recovering from distemper, or a bitch after whelping, is predisposed to Eczema. Dogs exposed to a sudden chilling of the surface of the body, when heated, frequently develop Surfeit. Sometimes dogs confined to poorly ventilated, damp kennels develop Eczema, or Surfeit. In fact, any condition that tends to cause a sluggishness of the circulation produces impure blood, and eruptions of the skin naturally follow as a result.

SYMPTOMS.—This disease generally affects the neck, back, inside the thighs, arms and the abdomen. The skin becomes red, painful to the touch, small pimples form and serum oozes from them. This gradually spreads and the skin becomes raw and ulcerated. The dog will continue to scratch and bite himself violently, producing further irritation, if not properly treated.

TREATMENT.—Internal treatment is just as essential as applications to the skin. Digestive and blood disorders must be eradicated before the outer surface of the body will yield to a treatment. Internally, give Fowler's Solution of Arsenic, two to eight drops, three times daily in the food. The drug should be given at first in small doses and gradually increased as tolerance is established. If the bowels are sluggish, give one to three grains of Calomel. This will relieve any irritant in the alimentary canal. Feed food that is easily digested, as vegetables, Cod Liver Oil, etc. Beef Broth is beneficial, but a heavy meat diet should be discontinued. To the irritated surface of the skin, the following is soothing as well as healing: Zinc Oxide, one

ounce; Pisis Liquid, one ounce; Mercurial Ointment, one ounce. Mix and apply sparingly once a day. Poisons are readily absorbed through the skin, therefore, be very careful when using powerful antiseptics over a large surface of the body.

EYE INJURIES

(Conjunctivitis)

Cause.—Direct or indirect injuries, as a blow from a whip, dust, sand or chaff in the eye, or may be due to extreme cold, or heat, or foul air.

Symptoms.—An inflammation of the superficial structures of the eye, with a partial or complete closure, and a watery discharge due to the overstimulation of the lachrymal glands, the fluid being secreted so abundantly that it is impossible for the tear duct to carry it away, hence there will be a continuous flow of tears running down the side of the dog's face. The formation of a film or a scum over the eyes need not cause alarm if the eyeball shows no sign of being lacerated or punctured.

Treatment.—Examine the eye carefully and remove any foreign body with a clean cloth or feather, and use a solution made from distilled water containing three per cent Boric Acid, and apply ten or twelve drops to the eye by the use of an ordinary eye-dropper. Keep the animal in a clean, dark room, as it hastens recovery and avoids other serious eye complications.

FITS

(Epilepsy)

Cause.—Usually arises from excessive nervous irritation, induced by disturbances of the stomach and bowels from the presence of worms, indigestible food,

etc., or it may arise occasionally from a hereditary predisposition, sexual excess, urine irritation, or from other causes inducing extreme nervousness, irritability, etc. Dogs affected with this disease are usually troubled with dyspepsia and constipation.

Symptoms.—The leading symptoms of the disease are sudden loss of consciousness, with spasms of muscles, followed by exhaustion and drowsiness. After a certain length of time has passed, the attack returns. About five or ten per cent of the cases give some warning for a short time before the fits come on, but in most cases the fit comes on suddenly, the dog whines, and at once falls to the ground senseless with convulsions. The eyes are partly open, the eyeballs rolling, and a gnawing of the teeth, foaming at the mouth; the tongue is usually extended out, and many times badly bitten. The nose is usually cold and clammy and breathing laborious. The fit usually lasts from a few minutes to one-half hour, but in some cases continues for longer time.

Treatment.—The dog should be placed on a blanket to prevent inhalations of dust, etc., remove the collar from around the neck, and apply cold applications of ice to the head. The remedy most to be relied upon is Bromide of Potassium, and should be given to a dog weighing forty pounds in doses of twenty grains three times a day. The dose to larger or smaller dogs should be given in proportion to their weight. If necessary, the dose may be increased one-third for a short time. Also give Castor Oil, one to two ounces. To puppies give in proportion to their weight. Pay strict attention to the organs of digestion, and see that the nourishment taken is sufficient to nourish the body well, but be careful not to have an over-amount at one time. Also regulate the feed so as to always have five or six hours elapse between feeds. It is advisable to give a vermifuge in all cases of fits, as worms are frequently producers of the malady.

FRACTURES

(Bone Fractures)

CAUSE.—There are several different varieties of fractures, but for convenience sake I will divide them into four varieties:

1. Simple fracture is one in which a bone is broken and the muscles and skin are not severely injured.

2. Compound fracture is one in which the sharp ends of the broken bone penetrate and perhaps pass through the skin. This is considered a rather severe fracture.

3. Comminuted fracture is one in which a broken bone is badly shattered.

4. Complicated fracture is one in which important articular joints and large arteries are injured.

Some people imagine that the bones of the dog will not unite as quickly as the bones of man, but I am of the opinion that they will unite quicker if the bones are properly placed and the animal kept quiet. I will admit that fractures are somewhat troublesome to treat in some cases, although I have seen dogs with severe fractures make good recoveries without any assistance other than that of nature. In treating a fracture where the bones penetrate the skin, cut the hair from around the surface and wash with a five per cent solution of Carbolic Acid. Place the broken bones in position, wrap the surface with a thin layer of cotton and retain the bones in position with splints and bandages. Keep the animal as quiet as possible and feed on soft laxative good. If bowels become constipated, give two to four ounces of Castor Oil. If severe swelling follows in a few days, and the dog shows signs of great pain, remove the bandage and wash clean with an antiseptic. Then place fresh cotton around the part and bandage the same as before.

GOITER

(Bronchocele)

CAUSE.—Generally associated with a debilitated condition of a heavy pregnant bitch that is poorly fed, and exposed to various temperatures. The offspring of such a bitch are very often victims of Goiter. When the puppies are born the mother's milk lacks sufficient nitrogenous properties; they are consequently deprived of mineral matter and develop Goiter. Some writers hold that this is hereditary, because one or more puppies become affected at the same time. I believe that it is due to debility, starvation, and what produces it in one dog will produce it in another. Although full-grown dogs are often victims of Goiters, it is due to some debilitated condition drawing on their systems. Even though the dog looks well, and appears to be in good condition, his food may be deficient in mineral properties.

SYMPTOMS.—Enlargement of the Thyroid bodies of the ductless gland situated on the under surface of the neck. It may vary from the size of a pigeon's egg to the size of a man's two fists. It is very easily detected, and does not often interfere with the animal's breathing unless it becomes abnormally large and causes pressure on the windpipe, jugular vein and esophagus. A dog affected with Goiter does not thrive, his hair looks faded, dusty and rough.

TREATMENT.—Administer Adrenolin twice daily in five to ten grain doses half an hour before feeding, and two to five grains of Potassium Iodide two times daily shortly after feeding. The Potassium Iodide should be discontinued when the skin scales, or when an abnormal watery discharge from the eyes is present. To the enlargement apply Tincture of Iodine once a day with a camelhair brush. If the dog has long hair, clip it off from over the enlargement. Feed the dog on nitro-

genous foods, as raw eggs, Cod Liver Oil, Beef Broth, and also supply him with soft bones to chew. Where the bowels are constipated, give one to two ounces of Castor Oil. The above medicines prescribed are prescribed for dogs weighing forty pounds, and should be increased when given to larger, or decreased when given to smaller dogs proportionately to their weight. See that the dog has clean, light and well ventilated quarters to sleep in.

INDIGESTION

(Dyspepsia)

CAUSE.—Intestinal worms, indigestible and unnutritious food, foreign bodies in the stomach, eating too large a quantity or, in many cases, eating too fast, torpidity of the liver, derangements of the teeth, as the accumulations of tartar cause the gums to become soft and sore, resulting in the dog not taking sufficient time to chew food properly; excessive or inexcessive exercise, or improper attention to the hygienic surroundings often derange the digestive system.

SYMPTOMS.—The appetite is depraved, the dog eats grass freely, and vomits often; colicky pains, persistent constipation and bloating, causing the dog serious inconvenience. He is irritable, dull and evidently out of sorts; his coat looks faded and feels rough; the temperature and pulse are not much affected; as a rule the breath is foul, the tongue covered with a whitish fur, loss of flesh occurs, and paleness of the skin.

TREATMENT.—Good hygiene, careful feeding of nitrogenous foods and regular exercise plays a very important part in the treatment of indigestion. First, endeavor to clean out the Alimentary Canal by the careful use of physics, as Calomel in one to three grain doses. Feed raw eggs, sweet milk, boiled vegetables, fresh raw beef finely chopped. Also give one tablespoonful of Cod Liver Oil two or three times a day. I have derived

good results in the treatment of Indigestion by using the following gastric tonic: Pepsin, two ounces; Syrup of Orange, two ounces; Tincture of Columbia, five drams; Tincture Nux Vomica, one dram; Tincture Gentian, one dram; water, quantity sufficient to make six ounces. Mix and give one or two teaspoonfuls three times daily before feeding. In cases where there is great difficulty in the dog passing the feces, give rectal injections of soap and warm water.

JAUNDICE

(Liver Congestion)

CAUSE.—A sluggishness of the liver, or by the bile duct becoming obstructed by a Calculi (Gall Stone). Either condition suppresses the flow of bile into the bowels, hence the bile is taken up by the blood and causes the visible mucous membranes of the eyes and mouth to become yellowish in color. The predisposing causes are improper and overfeeding, combined with lack of exercise in house dogs, or excessive exercise in hunting dogs, exposure to damp, ill-ventilated sleeping quarters, producing debility, and liver complications are likely to follow.

SYMPTOMS.—Appetite varied, thirst great, vomiting occasionally, the dog shows signs of dullness and sleepiness. Then there may be alternate diarrhoea and constipation, the tongue coated and foul in smell, the eyes, mouth, inside of the ears, and the skin inside the thighs and fore legs become very yellow and dry, temperature and pulse not much affected, the dog passes small quantities of dark amber colored urine frequently, due to the bile it contains. In severe cases, the dog loses strength and flesh readily and soon becomes a mere skeleton. Jaundice is often a complication of other diseases, as distemper, indigestion, colic, constipation, etc.

TREATMENT.—Endeavor to make the dog as comfortable as possible by placing him in quiet, clean, light

and well ventilated quarters. If he is in great pain, apply hot applications over the seat of pain and administer Calomel, one-half grain; Podophyllin, two grains; Powdered Jalap, one dram; Powdered Rhubarb, one dram. Make into six capsules and give one capsule once daily to a dog weighing forty pounds; to smaller or larger dogs regulate the dose in proportion to their weight. The above prescription stimulates the flow of bile from the liver into the bowels, which is very important in the treatment of Jaundice. Tonics are also necessary, and I have found the following very beneficial in treating convalescing diseases, especially where the appetite is poor: Pulv. Ferri Sulphate, one dram; Quinine Sulphate, one dram; Pulv. Nux Vomica, one dram; Pulv. Gentian Root, two drams. Mix and make into twenty-four capsules and give one capsule three times daily just before feeding. This dose should be given to a dog weighing about forty pounds. Smaller or larger dogs should receive the same medicine in doses proportionate to their weight. Feed raw eggs, pure sweet milk, fresh beef finely chopped, cooked vegetables, beef broth, etc. Do not feed too large a quantity at any one time.

LUNG FEVER

(Congestion of the Lungs—Pneumonia)

Cause.—Frequently occurs when dogs are accustomed to warm, comfortable quarters, then exposed to cold, drafty kennels during cold weather. In fact, any sudden chilling of the body is a common cause of lung disorders. Giving fat dogs too much exercise when they are not accustomed to it is frequently the cause of engorgement and inflammation of the soft spongy tissue of the lungs. Excessive exercise or running during the hot summer months is apt to cause congestion of the lung tissue as well as heat stroke. Washing or dipping dogs during cold weather may chill the outer surface of the body and result in Congestion of the Lungs.

Symptoms.—Lung Fever follows as a result of a bad cold, and is preceded by the symptoms of the primary disease. If due to severe exercise, the animal appears greatly exhausted, and the congestion of the lung substance is marked and may occur at this stage of the disease. Lung Fever usually begins with a chill, and is followed by a high fever. The dog lies down most of the time, and eats nothing, or very little. The breathing is hurried and fast, but when the lung becomes badly involved it is labored. The character of the pulse beat varies, depending on the extent of the inflammation and the stage of the disease. In most cases the pulse beats are full and quick during the first stage, but later, as the condition of the dog improves, more nearly normal. A very weak pulse is present in severe and fatal lung inflammation. The visible mucous membranes of the eyes and mouth have a congested appearance, and there may be a slight discharge from the nostrils, reddish in color. The expression of the face is distressed and anxious, and in severe cases, rigors and chilling of the body occur. The respiratory sounds become more or less changed from normal. The cough is at first deep and dry, later loose and moist. It may be accompanied by a hemorrhage of the lungs during the first stages of the disease. Other respiratory sounds are revealed by placing the ear to the side of the chest wall and listening. In the very early stages of lung fever, a crepitating, or crackling sound can be heard in the diseased parts; and louder sounds than normal in the healthy areas. Later, when the engorgement of the lung substance occurs, and the air cells become filled by the inflammatory exudation, the respiratory sounds are deadened. On returning to the normal, rattling sounds occur. These signs aid greatly in determining the dog's condition. The chance for recovery depends on the extent and acuteness of the disease. Careless handling, exercise, etc., lessens the chance for a favorable termination in this disease, and good nursing helps more in bringing about a recovery

than the medical treatment. The chances are more unfavorable in fat dogs than in lean ones, as the inflammation is usually more severe in the former. The course of the disease is from one to three weeks, and it may become chronic if the irritation is kept up. In such cases, unthriftiness is a prominent sign.

Treatment.—Preventive treatment in Lung Fever must not be overlooked. Briefly, it consists in avoiding such conditions as may predispose the dog to the disease, or act in any way as an exciting cause. Careful nursing is a very important part of the treatment. The dog should be given a clean, comfortable, well ventilated kennel, and kept as quiet as possible. To keep the bowels from becoming constipated, give one-half to one ounce of Castor Oil daily. Feed raw eggs, pure fresh milk, beef broth, etc. In severe cold weather, the dog must not be permitted to chill or take more cold. Cover him with a blanket, or use artificial heat. As one attack predisposes a dog to the second, he should be protected from severe cold, or the other extreme, heat, for a few weeks after making a complete recovery. It is advisable to apply strong stimulating liniments over the lungs, as Aqua Ammonia Fort., one ounce; Oil of Turpentine, one ounce; Sweet Oil, two ounces. Shake well and apply once daily.

I have found the following prescription very beneficial in the treatment of Lung Fever, as it regulates the heart action, lowers the temperature and stimulates the body in general: Tincture Digitalis, one dram; Tincture Nux Vomica, one dram; Nitrous Ether, two drams; Liq. Ammonia Acet., four drams; water, quantity sufficient to make four ounces. Give one teaspoonful every two or three hours.

All drugs prescribed in the above treatment are based on a dog weighing forty pounds. Larger or smaller dogs should receive the same medicine but in doses proportionate to their weight.

MAMMITIS

(Garget, or Inflammation of the Udder)

CAUSE.—Inflammation of the Udder commonly occurs in heavy milkers, and is caused by all the milk not being removed. Sometimes it occurs as the result of the milk accumulating in the udder when the bitch has lost part of her litter. Other causes are obstructed teats, injuries to the glandular tissues, and infection from germs. Congestion and inflammation of the udder frequently follow difficult birth.

TREATMENT.—Milk the bitch three or four times a day. This will usually relieve the congestion. A physic of Castor Oil, one or two ounces, should be given and the animal fed on easily digested food, as boiled vegetables, fresh raw beef finely chopped, pure sweet milk, etc. The udder should be massaged gently with the fingers, and the following ointment applied: Gum Camphor, one dram; Fluid Extracts of Belladonna, one dram; Lanolin, three ounces. Mix and apply two or three times daily. Fomentations of hot water are beneficial in the majority of cases. If the appetite is deprived, administer Nitrate of Potash, two drams; Pulv. Nux Vomica, one dram; Pulv. Gentian Root, one dram. Mix and make into twenty-four capsules and give one capsule three times daily before feeding. This dose is based on a dog weighing forty pounds. Smaller or larger dogs should receive the same medicine, but in doses proportionate to their weight.

MANGE

CAUSE.—This skin eruption is produced by the Sarcoptes Scabi. There are two other forms of parasites that produce Mange, but they are so rarely found that we need not mention them. Insanitary conditions favor their production. A dog in a poor condition, with a

dirty skin, etc., is more liable to be attacked than dogs in good condition and with clean skins. It may be communicated in various ways, through kennels, brushes, collars, etc.

Symptoms.—Are generally very plain. It usually attacks the back, about the root of the tail, and extends to the head and neck, spreading quickly. The scabs do not pile up as they do on other large animals, because the dogs, on account of the intense itching, continually rub and scratch themselves so that only thin scabs can form. The affected skin becomes denude of hair, the dog becomes thin, emaciated, etc. The parasites can be seen with an ordinary magnifying glass, or if the small scabs be scraped off and placed on a dark paper in the warm sun, you can readily see small, white objects moving about. Eczema usually attacks the belly, etc., while true Sarcoptic Mange attacks the back and then spreads.

Treatment.—Feed soft, laxative food and give one to two ounces of Castor Oil; also provide clean, dry sleeping quarters. I have found the following remedy very successful in the treatment of Mange: Oil of Tar, one-half ounce; Vinice Turpentine, two ounces; Sublime Sulphur, one pound; Crude Petrolatum, one quart. Apply once a day. A few applications are generally sufficient to effect a cure. Great care should be exercised, as this disease is very contagious, and communicated to other dogs.

PLEURISY

Cause.—The common cause, perhaps, is a sudden chilling of the body; cold, damp, chilly weather and damp, drafty kennels are favorable conditions to cause chilling of the body and the rheumatic form of Pleurisy. Germs may also produce it. It is commonly met with in specific diseases, as Distemper, etc.

Symptoms.—Chilling and high temperature, two to

four degrees above normal, the dog generally refuses to eat, and acts dull. Pain is a noticeable sign, and when the sides of the chest are pressed with the hand the dog will flinch; this is very noticeable during the early stage of the inflammation, and may cause a dog to act restless. When breathing the ribs are always held rigid. The breathing movements are mostly in the muscles of the flanks, the dog getting his breath in short jerks. Later, when fluids collect in the chest cavity, the breathing is more labored, and all of the abdominal muscles are used. On absorption of this fluid, the movements of the lungs may again become jerky in case the inflammation becomes chronic. The character of the pulse beats varies, and in some cases is very weak. In the early stage of the disease, friction sounds, caused by the dry inflamed membranes rubbing against each other, are detected on placing the ear against the chest walls. Later, the collection of fluids around the lungs may deaden all lung sounds, especially towards the lower part of the chest. In a mild case of Pleurisy, the inflammation is localized to just part of the lungs, or pleura. A lameness in both front limbs and stiffness in moving about are the most noticeable signs in this form of disease. In Chronic Pleurisy a dog is usually very weak and depressed. He is seen frequently lying on his side, and shows great difficulty in walking. The course of Acute Pleurisy is from six to eighteen days; the chronic form may run a course of two or three months, or longer. This form is unsatisfactorily treated, and the dog eventually dies.

TREATMENT.—Place the dog in clean, warm, comfortable surroundings; fresh air is very beneficial, but omit any drafts. Internally, administer the following: Quinine Sulphate, two drams; Potassium Iodide, two drams; Carbonate of Ammonia, one dram; Potassium Nitrate, four drams. Mix and make into thirty-two capsules. Give one capsule every three or four hours. This dose is based on a dog weighing forty pounds; to smaller or larger dogs give the same medicine, but in

doses proportionate to their weight. Feed the dog raw eggs, pure fresh milk, cooked vegetables, finely chopped beef or beef broth, and in some cases I believe it is very beneficial to give the dog small doses of brandy. Over the lungs apply the following liniment: Aqua Ammonia Fort., one ounce; Oil of Turpentine, one ounce; Sweet Oil, two ounces. Shake well and apply like a shampoo once daily.

PILES

(Prolapse of the Rectum)

Cause.—Overfeeding with too stimulating food, deficiency in exercise, constipation, causing straining; consequently, Piles frequently follows. This condition sometimes occurs in weak, debilitated dogs, due to a relaxed condition of the intestines.

Symptoms.—In some cases only a portion of the rectal mucous membrane protrudes outside of the anus. In the more severe cases red, bleeding tumors will be present. After being exposed for a time, it becomes enormously swollen and dark in color, and finally dries and cracks on its surface. The protruded part itches intensely, and the dog rubs and injures the intestine trying to relieve the irritation. Usually the appetite falls off, and the dog is restless if not relieved.

Treatment.—When the dog is constipated, as is usually the case it should be given a laxative, such as one to three ounces of Castor Oil, and fed on food that is loosening to the bowels. The protruded rectal mucous membrane should be washed with warm water containing five per cent Carbolic Acid until clean; then replace. If badly swollen and inflamed, astringent wash should be used, made from Water and Powdered Alum five per cent. The protrusion can be returned by gentle pressure of the fingers. In case the protruded rectum shows signs of sloughing, it should be cut off and the cut edges of the rectum stitched to the edges of the anus.

RABIES

(Mad Dog)

CAUSE.—Rabies is produced by a specific micro-organism that is known to exist in the brain, spinal cord and the saliva of affected animals. This disease is communicated from one animal to another by inoculation, usually by the bite of a rabied dog, or the saliva entering a wound or abrasion. Wild animals, as well as domesticated, no doubt spread the disease by biting, but it is a fact that dogs are inclined to bite, and have a good opportunity to attack people, and hence are considered the principal factor in the spread of the disease.

SYMPTOMS.—Are characterized by two forms of Rabies: Furious and Dumb. In Furious Rabies, the general habits of the dogs are changed. They become very restless, excited, and frequently are more affectionate than usual, licking the hands or face, soliciting sympathy and help. This form of Rabies is extremely dangerous, for the dog's tongue is covered with saliva containing micro-organisms which, coming in contact with thin skin, wounds or abrasions, may inoculate the person to whom the dog is attempting to prove its fondness, etc. This form of inoculation is not uncommon. Usually, the dog becomes dull, melancholy, etc., seeking some cool, dark and quiet place. The eyes at times are fixed, or are rolled about, and there is an abundant secretion of saliva, which dribbles from the mouth. It frequently gnaws wood, especially if tied or locked up, and makes a desperate effort to get away. It also swallows indigestible objects, and attempts to bite its master, mistress and animals. Paralysis soon develops, and the dog has difficulty in swallowing, and is unable to move about.

DUMB RABIES.—This form of Rabies is accompanied by depression and a tendency to lick objects.

Paralysis of the muscles that close the mouth causes the jaw to drop or hang down. The dog is unable to bite and, owing to the relaxed conditions of the mouth, he cannot close it. The tongue hangs out, and stringy saliva escapes. The dog may attempt to bite even though the muscles that close the mouth are paralyzed. The duration of the disease is short; paralysis develops early in the attack, and death usually occurs in from two to four days.

Treatment.—Prevention. All vagrant dogs should be exterminated, and all dogs that appear in public highways, streets or public places should be muzzled. This precaution has practically eradicated the disease in Europe. Medical treatment is useless after the first appearance of the symptoms. However, a wound infected by Rabies should be immediately cauterized, or even completely cut away, care being taken to cut entirely around the wound in the healthy flesh. For cauterizing the wound, use Nitric Acid or a hot iron. Sometimes a ten per cent solution of Zinc Chloride is used, and perhaps it is the most successful. To afford absolute protection, this should be done within a few minutes after being bitten. However, treatment even as late as a few hours has been known to suppress the development of the disease. Pasteur has originated a virus which is used with great success, and any person bitten by a dog suspected of Rabies should be submitted to Pasteur's treatment.

RHEUMATISM

(Articular and Muscular)

Cause.—This disease is generally attributed to cold, damp, filthy, ill-ventilated kennels, and exposure, but it may occur in dogs that are well cared for. Overfeeding is also liable to produce it. The most frequent forms of Rheumatism in dogs are Lumbago, Chest Founder, or Kennel Lameness.

Symptoms.—The symptoms are quite marked. These are severe loss of appetite, lameness and general lack of condition. Sometimes large swellings appear in the region of the hock, knee, and joints of the feet. The muscles of the back are held stiff and arched, the muscles are tender and sensitive when pressed, and the dog may be unable to move his hind parts. Other cases may show a serious train of symptoms. A bitch that has raised a litter of pups, when in poor flesh, is often affected with this disease. A lameness of one or more of the limbs that shows a tendency to shift about is the only sign noticed in the mild form of the disease. Stiffness of the joints is noticed, especially if the quarters are affected, and the dog lies around a good share of the time and refuses to go far for its food. In Acute Rheumatism, the pain in the affected muscles and joints is intense, and when these parts are handled, or the joints moved, the dog will whine from the pain produced. When lying down, asleep, sudden contractions of the muscles may be noticed. This is due to the pain resulting from the relaxing of the muscles. This disease may pursue a long course; the joints become greatly enlarged, and the dog grows very thin and weak. In such cases, a complete recovery seldom follows.

Treatment.—Prevention is very important, such as providing dry, comfortable quarters, and the avoidance of exposure. Unless this is practiced, but little can be obtained from medical treatment. A soft laxative diet is also indicated: Salicylate Soda, three drams; Quinine Sulphate, one dram. Make into twenty capsules and give one capsule every three or four hours. When the bowels are constipated, give two or three ounces of Castor Oil. The above doses are based on a dog weighing forty pounds. Smaller or larger dogs should receive the same medicine but proportionately to their weight. It is advisable, in cases where the limbs are badly swollen, to apply liniments, and I would recommend the following: Aqua Ammonia Fort., two ounces; Oil of Turpentine, two ounces; Sweet Oil, four

ounces. Shake and rub on the affected parts once or twice daily.

RICKETS

Cause.—Perhaps the most common cause of this disease is a faulty diet, as food that is deficient in inorganic matter. Unless supplemented by milk or other foods containing lime salt, the bones are not supplied with the necessary elements; lack of exercise, ill-ventilated, filthy kennels, etc., help in causing the disease. A tendency towards Rickets in pups is no doubt hereditary.

Symptoms.—The dog is usually in good condition at the beginning of the disease. Large, well grown pups may suddenly develop symptoms of paralysis of the hind parts. The weakened condition of the thigh bone, not being able to support the dog's weight, fractures. At other times there is a weakness and bending of bones in the limbs, breaking down of the feet, bending or arching of the back, straddling gait, deformed or disfigured condition of the face or nose.

Treatment.—Rickets can be prevented by careful feeding on suitable foods and keeping the dog clean in well ventilated kennels, where he can get plenty of exercise. Whenever a litter of several pups show symptoms of the disease, the character of the food should be looked into, and if faulty corrected by adding to it medicines or food containing required elements. It is hardly practical to use medical treatment other than bitter tonics. Unless the disease is in an advanced stage, it can usually be controlled by careful feeding of a ration rich in inorganic substances, as bone dust, lime water, and crushed egg shells, with a view of supplying calcareous matter to the system. This can be fed to the bitch nursing the pups or, if the pups are weaned, feed them carefully.

RINGWORM

Cause.—Dogs may become infected with Ringworm by coming in contact with infected dogs, or by being shipped in crates or boxes in which infected dogs have recently been transported, or by using blankets, brushes, collars, etc., which have been recently used by infected dogs.

Symptoms.—Small red spots first appear on the skin, gradually enlarging, and are covered with a thin, grayish scale, under which is found a serum. The hair falls out as a result of the infection of the skin by the parasite. The outside of the affected patches is red, while the inner portion takes on a grayish-white color, giving it a ring appearance. This condition is followed by severe itching; the dog rubs and scratches severely.

Treatment.—The most effective drug is Tincture of Iodine, applied once daily with a brush. Great care must be exercised, as this disease may be transmitted to man, and to all domestic animals. Sanitary surroundings and good, clean food, that is easily digested, assists materially in eradicating the parasites.

ROUNDWORMS

(Maw Worms)

This worm is commonly seen infesting the intestines of puppies. The body is generally white in color and slightly curved at the head. This worm has a stiff, wiry appearance, and measures from one to three and one-half inches in length.

Symptoms.—Puppies are more susceptible to these worms, although we find them in aged dogs. About fifty per cent of the dogs are infested with these worms. They cause irritation of the intestines, irregularity of digestion, diarrhoea, colic, nervousness, constipation,

irregular appetite and a rough, dry, unthrifty appearance of the hair and skin, and the dog becomes emaciated. After this worm migrates into the stomach, it causes nausea and vomiting, occasionally the bowels are filled with large masses of these worms, and their passage aids in determining the cause of the dog's debility.

Treatment.—Withhold all food from eighteen to twenty-four hours and administer Thymol, one grain; Santonin, three grains; Calomel, two grains. Mix and place in capsule and give in one dose to a dog weighing fifty pounds. Smaller or larger dogs should receive the same prescription, but in doses proportionate to their weight.

SORE THROAT

(Pharyngitis—Laryngitis)

Cause.—Sore Throat is frequently complicated by a cold. Sometimes it is produced by inhaling irritating gases, or administering irritating medicine. Injuries from sharp pointed sticks, eating sharp bones, etc.

Symptoms.—It is more or less severe. The eyes are red and watery, and the dog is dull and lies around most of the time. The appetite is poor and, because of the pain and difficulty in swallowing, the dog may refuse food. The pain in the throat is sometimes severe, and causes the dog to move about in a restless manner. The character of the cough depends on the part inflamed. When the larynx (opening of the windpipe) is involved, the cough is usually hoarse and the breathing noisy and labored, as the opening is more or less closed by the inflammation. At other times it is dry and, when the dog moves about, or the parts are irritated by dust, cold air, etc., coughing spells usually follow. The throat may be swollen so as to be noticeable from the outside. Simple Sore Throat is not a serious affection, and lasts but a short time. The symptoms may be so mild as to escape observation; however, if the conditions are favor-

able, it may re-occur and assume a severe form or become chronic.

TREATMENT.—Place the dog in clean, warm, well ventilated quarters and feed soft food that is easily digested, as hot milk, boiled rice, etc., and administer the following: Potassium Chlorate, one dram; Liq. Ammonia Acet., three ounces; Vini Ipecac, two drams; Tincture Camph. Co., one-half ounce; Aqua Chloroform, quantity sufficient to make six ounces. Give one teaspoonful every four hours. This dose is based on a dog weighing forty pounds. To smaller or larger dogs give doses in proportion to their weight. When the throat becomes badly swollen, apply a liniment made from equal parts of Aqua Ammonia Fort., Turpentine and Sweet Oil. Apply over the throat and rub in briskly.

TAPEWORM

(Tenia Marginata)

CAUSE.—A dog eating raw flesh of sheep or cattle infested with the larva of the Tapeworm or Gid, Sturdy, or Water Balls. (See Gid in Sheep.)

SYMPTOMS.—Tapeworms in dogs are numerous. It must be borne in mind that an animal is not free from them until the Tapeworm's head, apparently the most insignificant part, has passed from the intestines. So long as the head remains attached to the wall of the bowels by its hooklets it will develop fresh eggs, producing segments which are passed and prove the means of scattering the parasites. A dog infected with Tapeworm, as a rule, is liable to reflex paralysis, coughing and convulsions from the irritation caused by its presence in the bowels, depraved appetite, unthriftiness, a rough, unhealthy condition of the skin, loss of hair, anemia, irregularity of the bowels, and the feces offensive and slimy. There is generally a certain amount of irritation of the anus, which renders the dog fond of

licking those parts or dragging them along on the ground. Tapeworms frequently cause vomiting, and I have seen portions of Tapeworms expelled in this way. In other cases there may be diarrhoea and obstinate indigestion may be traced to the presence of Tapeworms.

Treatment.—Withhold all food for twenty-four hours and administer Extract of Mail Fern, two drams; Pulv. Areca Nut, one dram. Mix in two tablespoonfuls of syrup and give at one dose. Follow this treatment in about two hours with one to two ounces of Castor Oil. This treatment should be repeated in a week or ten days. These doses are based on a dog weighing forty pounds. Smaller or larger dogs should receive the same medicine, but in doses proportionate to their weight.

VOMITION

Cause.—This is a symptom which shows itself in almost any disease to which the dog is subject, so extensive are the reflex influences which follow disease in a dog. This process of Vomiting can be brought about in the dog by means of many medicines, and the good effect of emetics is appreciable even to the most casual observer. This class of medicines has been much abused by those caring for sick dogs, emetics being given for any and every disease. They sometimes free the stomach of irritants and poisons which cause disease and poisoning, but their use requires care and judgment.

Symptoms.—The dog shows very marked symptoms of pain, but usually the first signs exhibited are those of a sense of discomfort. The dog moans in his sleep, wakes suddenly, curls himself up and goes to sleep again. This continues until at last the vomiting is too urgent to allow rest. The dog utters sharp, shrill, continuous cries, tries all sorts of positions to get itself at ease, and walks about with the back arched. There may be distention of the abdomen, due to the gases gene-

rated in the bowels from the fermentation of their contents. Colicky symptoms frequently accompany vomiting, due to the spasmodic contractions of the stomach relieving itself of some irritant.

TREATMENT.—Knowing that the causes operating in the production of Vomiting are so numerous, it will be easily understood that the treatment must be equally variable. If due to the torpidity of the liver, give Calomel, one to two grains. When worms are suspected, give worm treatment recommended under the heading of Worms. When due to poisoning, give milk and raw eggs. In case it is due to faulty digestion, or where a dog is recovering from some debilitating disease, give one-fourth to one-half teaspoonful of Baking Soda in a gelatin capsule two or three times a day. The following prescription is recommended when all suspected irritants are removed from the stomach: Diluted Prussic Acid (B. P.), twelve drops; Bismuth Nitrate, one dram; Lime Water, four ounces. Mix and give one tablespoonful three times daily. This dose is based on a dog weighing fifty pounds. Smaller or larger dogs should receive the same prescription, but in doses proportionate to their weight. This medicine should be administered with great precaution, as it is very poisonous when used in larger doses, or given at shorter intervals than above recommended.

WOUNDS

A wound is a disruption of the soft parts of the body due to external violence. Wounds are of various kinds, as incised, lacerated, punctured, gunshot and poisonous.

TREATMENT.—If a wound is extensive, and bleeding is present, first arrest it, and the most satisfactory method is as follows: Tie the artery from which the blood is escaping, or twist with forceps, cauterize with hot iron, compress by bandaging tightly and apply

Tincture of Chloride of Iron. This coagulates the blood, and is very effective. One important factor in treating wounds is to attend to the drainage, as decomposed matter absorbed into the blood produces blood poisoning. Dogs lick wounds and keep them clean, therefore it is hardly necessary to apply medicine.

Sewing Wounds.—I cannot recommend sewing except in cases of incised or clean-cut wounds. After clipping the hair from around the incision, and washing it thoroughly with a one in one-thousandth solution of Bichloride, stitch with cat-gut or absorbent silk suture. In case of deep, punctured or gunshot wounds, with a syringe wash out the wounds, using a one in one-thousandth Bichloride solution. For open wounds, use dusting powders, as Iodoform, Boracic Acid, etc.

To keep flies from annoying a wounded dog, apply the following prescription: Oil of Origanum, one ounce; Oil of Turpentine, one ounce; Sweet Oil, one ounce. Apply to and around the wound with a feather. This is also a good healing liniment as well as a fly repellant.

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